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# PERSPECTIVES

## ON LABOUR AND INCOME



**SPRING 2002**  
Vol. 14, No. 1

- 2001 IN REVIEW
- WEALTH INEQUALITY
- LEAVING THE FARM
- THE WAGE GAP
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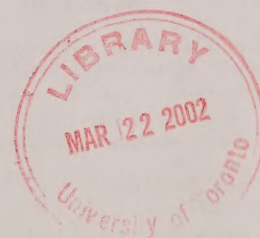
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ON LABOUR AND INCOME

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### Perspectives on Labour and Income

*The quarterly for labour market and income information*



# Highlights

## *In this issue*

### ■ The labour market: Year-end review 2001

... p. 7

- The economy and the labour market both took a turn for the worse in 2001. Employers responded to weak business conditions by cutting hiring by almost 7%, while permanent layoffs increased 2.1%. This resulted in a very small increase of 25,000 (0.2%) in employment, and an unemployment rate that nudged up 1.1 percentage points to 8.0% by December.
- With factories running at only 83% capacity (compared with 86% a year earlier), fewer workers were needed. Manufacturing employment peaked at 2.3 million in December 2000, but by the end of 2001, it had plummeted 111,000 or 4.8%, the largest year-over-year drop in factory employment since 1991.
- Much of the drop in manufacturing employment was concentrated in computer and electronic products, where the value of shipments took a drastic dive during 2001. Towards the end of the year, \$1.7 billion worth of such products were being manufactured in Canada, less than half the amount produced at the peak in October 2000. In December 2001, employment in this industry was 121,000, about three-quarters the level of a year earlier.
- With less factory activity, demand for trucking services eased. As well, the airline industry, already dealing with fewer travellers before September 11, cut back throughout the year. Together, truck and air transportation led the decline in the transportation and warehousing sector, which employed 42,000 (-5.3%) fewer workers by the end of the year.

- Some industries did well in 2001. The leading source of new employment was retail and wholesale trade, where employment increased by 76,000 or 3.2%—similar to the gains made a year earlier.
- Young men aged 15 to 24 were affected more than any other group by the economic slowdown. At the end of the year, 52,000 fewer young men were employed, a drop of 4.2%. While employment growth was slow for core-age (25 to 54) men and women, gains continued to be made among people aged 55 and over.
- Self-employment fell by 83,000 in 2001—the second consecutive yearly decline. As in 2000, the drop was associated largely with a decline in farm work.
- In British Columbia, employment tailed off in the second half of the year. Compared with the same period a year earlier, employment in the fourth quarter of 2001 was down 46,000 (-2.3%). After growing strongly in 2000, employment in Ontario grew only 10,000 by December 2001. At the end of the year, Ontario had an estimated 83,000 fewer factory jobs, a drop of 7.1%, erasing all the gains made the year before.

### ■ Wealth inequality

... p. 15

- The growth in wealth inequality between 1984 and 1999 was associated with substantial declines in real average and median wealth for some groups, such as young couples with children and recent immigrants.
- Only families at the top end of the wealth distribution increased their share of total net worth between 1984 and 1999.



- Wealth inequality increased more among non-elderly couples with children and among lone-parent families than among unattached individuals and non-elderly couples with no children.
- Real median wealth and real average wealth rose much more among families whose major income recipient was a university graduate than among other families; they both fell among families whose major income recipient was aged between 25 and 34, and increased among those whose major income recipient was 55 or over.
- The aging of the Canadian population over the period had two important effects: it tended to increase average wealth and to reduce wealth inequality.

### ■ Farmers leaving the field ... p. 23

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- In 1999, farm employment as a main job plummeted 6% from 1998. In 2000, it dropped a further 13%. This was followed by another decline in 2001, so that by the end of the year farm employment was 313,000, a drop of 26% in three years.
- While farm employment has fallen, output has not. In fact, the number of hectares planted with major crops has never been higher. Poultry, egg and milk production has increased in recent years. Only cattle and pig inventories have decreased since 1998.
- Although widespread, the decrease in farm employment did not touch all provinces equally. Most affected were Alberta, Saskatchewan and Ontario, where main-job farm employment fell by 30% or more from 1998 to 2001.
- Between 1998 and 2000, as main-job employment fell in agriculture, it rose in transportation (11%), manufacturing (12%), trade (11%), health and social assistance (9%), and education (4%)—the industries most likely to employ the skills of people living on farms.
- Not only have principal farm operators switched out of farming as their main activity, but spouses and children appear to have moved to off-farm work as

well. In 1998, in every 100 farming households, about 143 people were mainly employed on the farm. By 2001, this number had dropped to 131.

- Farmers, in general, have not seen an increase in profits since 1996. Operating expenses have risen to all-time highs, offsetting the modest gains in cash receipts. As a result, net farm income was \$2.6 billion in 2000, about the same as in the previous three years and only a fraction of the \$11.1 billion high set in 1975. While some are undoubtedly being pushed off the farm by rising costs and low profits, farm bankruptcies have declined in recent years.
- As a group, farmers are relatively old, with a large proportion approaching retirement.

### ■ The male-female wage gap ... p. 29

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- In 1997, the average annual earnings of women working full-year, full-time were 73% of men's. Using the average hourly wages of all employees, the ratio was 80%. This sizeable difference results mainly from differences in the study population and differences in work volume.
- Male-female differences in labour market experience, education and major field of study, occupation, job responsibilities, and industry can explain half of the wage gap. Actual labour market experience and major field of study, rather than proxy measures of experience and education, further help to understand the issue.
- Most studies examine the *average* pay differential and assume that the size and components of the gap are constant along the whole wage distribution. However, about 47% of the difference in pay at the 90<sup>th</sup> percentile and 57% at the 25<sup>th</sup> percentile are explained by differences in observable characteristics. This suggests that the 50% of the wage gap due to men and women possessing different wage characteristics at the mean fails to accurately represent the differences encountered along the wage distribution.



- Questions related to pay differentials are often framed in a manner that examines the extent to which women are paid the same as comparable men. Adopting alternative comparative wage structures can lead to quite different interpretations of the components of male-female pay differentials. For example, the portion of the gap attributable to differences in worker characteristics can vary from 6% to 61%.

## ■ What's new?

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### ■ Just released

*2001 Census Preview of Products and Services*

*The Effects of Interprovincial Mobility on Individuals' Earnings: Panel Model Estimates for Canada*

*Differences in Interprovincial Productivity Levels*

*National Occupational Classification for Statistics 2001*

University enrolment

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### ■ Upcoming conference

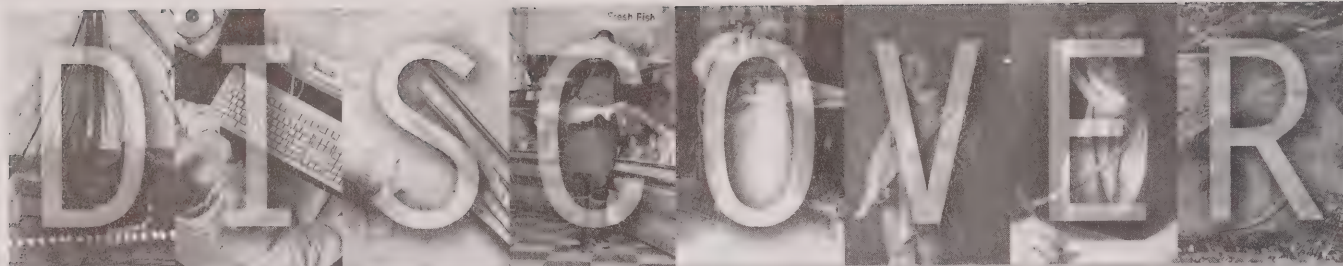
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## Perspectives

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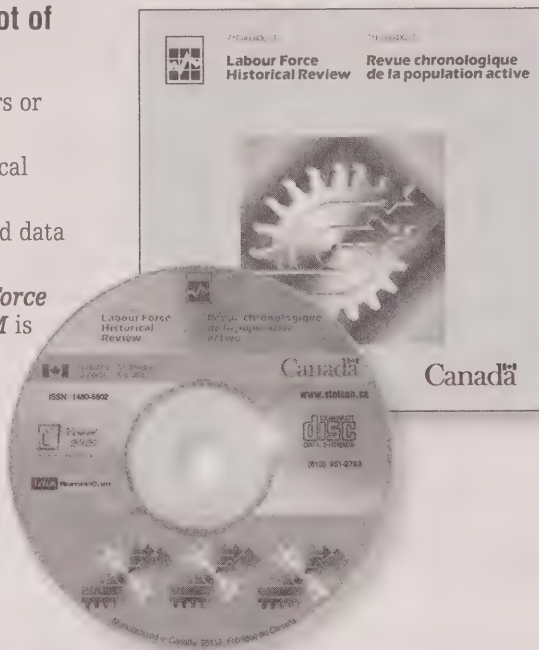


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# The labour market: Year-end review 2001

Geoff Bowlby

**T**HE ECONOMY and the labour market both took a turn for the worse in 2001 (Chart A).

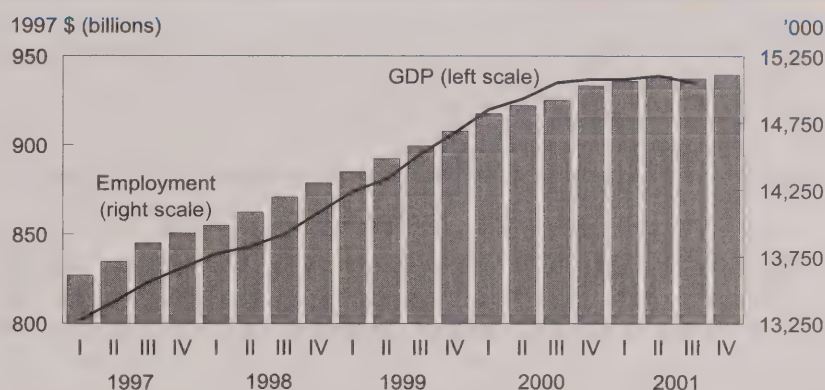
During the previous four years, a strong economy had produced some very impressive job gains. However, even before 2001 began, economic growth had begun to slow. In the second quarter of 2000, gross domestic product increased 0.5%—much slower than the rate of growth for the previous two years.

Growth slowed even further in the first half of 2001. Due in part to the effects of September 11, the economy contracted in the third quarter, the first time it had done so since 1992. While falling exports and business investment pulled economic growth down, consumers and governments continued to spend in the first nine months of the year.

Employers responded to weak business conditions by cutting back their hiring in 2001 by almost 7%, while permanent layoffs increased 2.1%. As one would expect under such conditions, unemployment rose, nudging the unemployment rate to 8.0% by December, 1.1 percentage points higher than a year earlier (Chart B).

Reduced hiring and more layoffs also resulted in a job growth trend that can best be described as flat.

**Chart A: GDP and employment growth stalled in 2001.**



Sources: Labour Force Survey and System of National Accounts, seasonally adjusted

By December, 15.1 million people were working, 25,000 more than at the start of the year, an increase of only 0.2%. This was not nearly enough to keep pace with population growth, and by the end of 2001, the employment rate slumped to 60.9%, 0.8 points lower than at the start of the year.

After rising for a number of years, participation in the labour market levelled off in 2001. The participation rate fell through most of 2001, but jumped to 66.3% in December, 0.1 percentage points higher than a year earlier.

A weaker economy also resulted in a shift to more part-time work and less overtime. As a result, the number of hours worked in the economy actually fell during 2001, even as employment increased slightly. At the end of the year, 0.9% less hours were being worked, the largest drop since 1991.

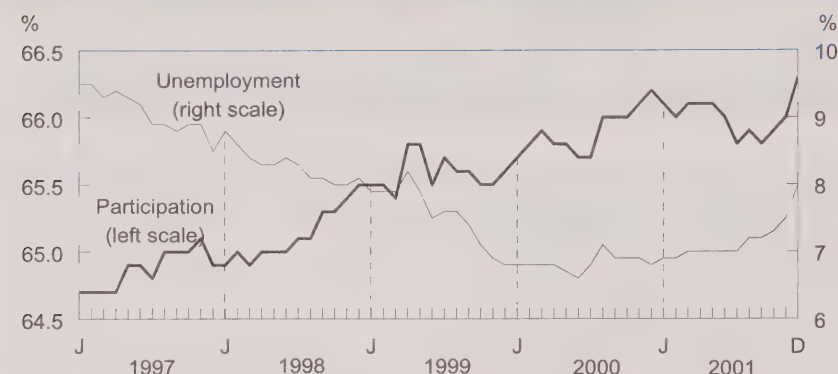
## Labour market weaker in the U.S.

While employment was flat in Canada, the trend was sharply down in the United States. Over the year, U.S. employment dropped 1.8 million, or 1.3%. This led to a sizeable increase in U.S. unemployment—from 4.0% at the start of the year to 5.8% in December.

Geoff Bowlby is with the Labour Statistics Division. He can be reached at (613) 951-3325 or [geoff.bowlby@statcan.ca](mailto:geoff.bowlby@statcan.ca).



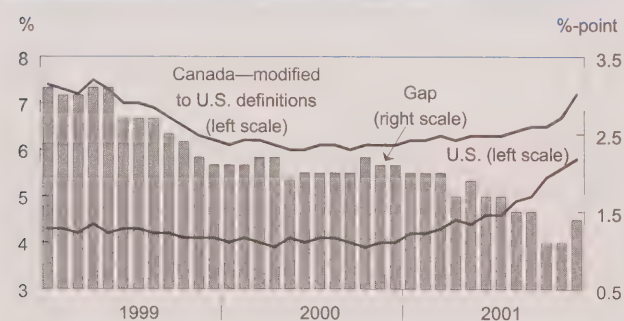
**Chart B: The participation rate flattened in 2001, and the unemployment rate rose.**



Source: Labour Force Survey, seasonally adjusted

The relative strength of the Canadian labour market in recent years has led to a narrowing of the gap between the U.S. and Canadian unemployment and employment rates. Adjusted to U.S. concepts of unemployment, the Canadian unemployment rate was 7.2% in December, only 1.4 percentage points higher than the U.S. rate. A year earlier, the gap was 2.1 points (Chart C). Only a couple of years ago, the proportion of the U.S. population with a job was 4 to 5 percentage points higher than the employment rate in Canada. By the end of 2001, this gap had narrowed to 2.1 percentage points.

**Chart C: The Canada-U.S. unemployment rate gap narrowed.**



Sources: Labour Force Survey and U.S. Current Population Survey, seasonally adjusted

## Manufacturing tumbled in 2001

Late in November 2000, the United States National Bureau of Economic Research declared that the U.S. had been in recession since March.<sup>1</sup> Naturally, the U.S. recession had an effect on Canadian exports, factory output, and later in the year, manufacturing employment (Chart D). The slide in manufacturing shipments that began in late 2000 continued into 2001, and by the start of the fourth quarter, they were 12.3% off their peak. Exports to the United States fell throughout the year. By October, they were down 15.8% from the January high.

With factories running at only 83% capacity (compared with 86% a year earlier), fewer workers were needed. Manufacturing employment peaked at 2.3 million in December 2000, but by the end of 2001 it had plummeted 111,000 or 4.8%, the largest year-over-year drop in factory employment since 1991.

**Chart D: Manufacturing shipments and employment both dropped through 2001...**



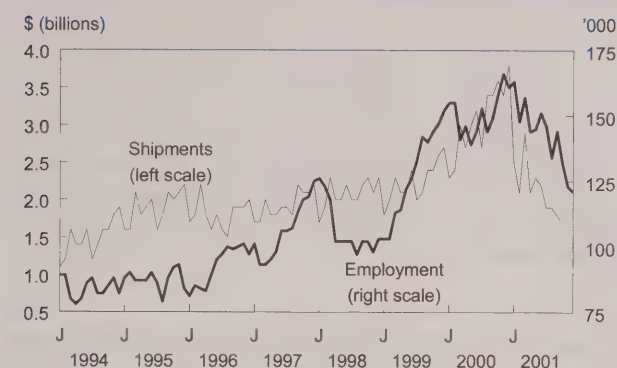
Sources: Labour Force Survey and Monthly Survey of Manufacturing, seasonally adjusted



## High-tech woes

Much of the drop in manufacturing employment was concentrated in computers and electronic products where the value of shipments took a drastic dive during 2001 (Chart E). Towards the end of the year, \$1.7 billion worth of computer and electronic products was being manufactured in Canada, less than half the amount produced at the peak in October 2000. A huge drop in demand meant less need for workers. In December, employment in computer and electronic product manufacturing was 121,000, about three-quarters the level of a year earlier.

**Chart E: ...as did computer shipments and employment...**



Sources: Labour Force Survey and Monthly Survey of Manufacturing, not seasonally adjusted

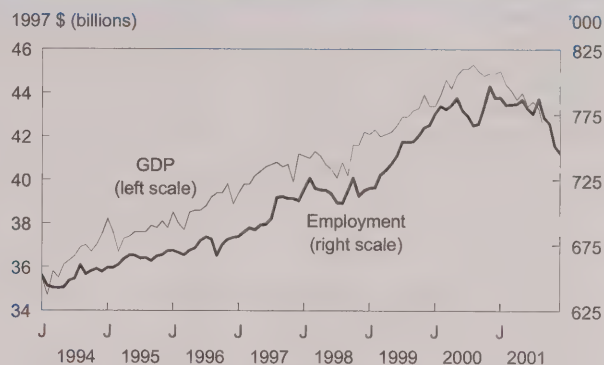
As employment in computer and electronic product manufacturing dropped sharply, employment in a related sector—computer systems design services—levelled off. After doubling in size between 1996 and 2000, employment in this industry (which includes workers in companies that provide computer programming services, Internet page design, and computer systems design) dipped slightly in 2001. At the end of the year, 245,000 people were working in this industry, about 1% less than 12 months earlier.

## Less factory output, less product to ship

With less factory activity, demand for trucking services eased. As well, the airline industry, already dealing with fewer travellers before September 11, cut back throughout the year. Together, truck and air

transportation led the decline in the transportation and warehousing sector, which employed 42,000 (-5.3%) fewer workers by the end of the year (Chart F).

**Chart F: ...and transportation employment and GDP.**



Sources: Labour Force Survey and System of National Accounts, seasonally adjusted

## Farm employment continued to slide

Farm employment continued its downward trend in 2001, falling 35,000 or 10.0%. This marked the third consecutive year in which main-job agricultural employment fell sharply. Over the last three years, agricultural production has probably shifted to larger, more capital-intensive farming operations. At the same time, some farms are now run as second jobs, and as a result, the farm operator is being counted as a worker in another industry.<sup>2</sup>

## Not all was bad

As mentioned earlier, consumers continued to spend in 2001 despite a weakened economy. Retail sales in October were 2.5% higher than at the start of the year (Chart G). It is perhaps not surprising, therefore, that the leading source of jobs in 2001 was in retail and wholesale trade, where employment increased by 76,000 or 3.2%—similar to the gains made a year earlier (Table 1).

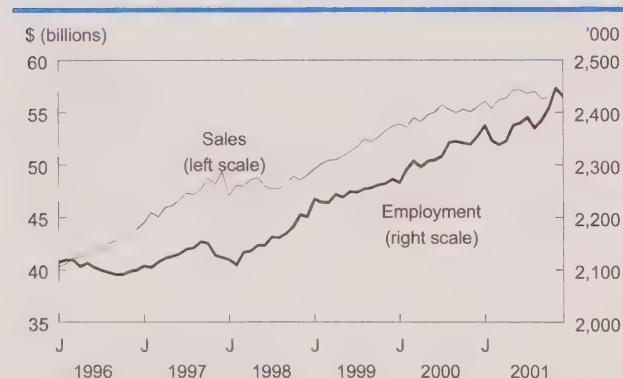
Spurred by tumbling interest rates, consumers were not only spending in the stores, they were also buying big ticket items like cars and houses as the Bank of Canada Rate dropped from 6.0% to 2.5% by December. This allowed car manufacturers to offer

**Table 1: Employment by industry**

	December 2001	Change from December 2000	
	'000	'000	%
<b>Total</b>	<b>15,091.4</b>	<b>24.7</b>	<b>0.2</b>
<b>Goods sector</b>	<b>3,792.4</b>	<b>-98.0</b>	<b>-2.5</b>
Agriculture	312.8	-34.7	-10.0
Forestry, fishing, mining, oil and gas	291.1	13.3	4.8
Utilities	121.7	4.0	3.4
Construction	848.9	30.1	3.7
Manufacturing	2,217.9	-110.8	-4.8
<b>Service sector</b>	<b>11,299.0</b>	<b>122.8</b>	<b>1.1</b>
Trade	2,430.3	75.6	3.2
Transportation and warehousing	745.8	-42.1	-5.3
Finance, insurance, real estate and leasing	873.0	-9.0	-1.0
Professional, scientific and technical	969.9	-18.8	-1.9
Management, administrative and other support	569.6	10.4	1.9
Education	970.9	18.7	2.0
Health care and social assistance	1,565.2	41.3	2.7
Information, culture and recreation	696.9	-3.8	-0.5
Accommodation and food	991.4	25.6	2.7
Other	698.4	-0.1	0.0
Public administration	787.6	25.1	3.3

Source: Labour Force Survey, seasonally adjusted

low-interest financing, which in combination with other purchase incentives caused a surge in new car purchases in October and November. Housing starts continued to shine as well, hitting a level in December that was 21.0% higher than a year earlier.

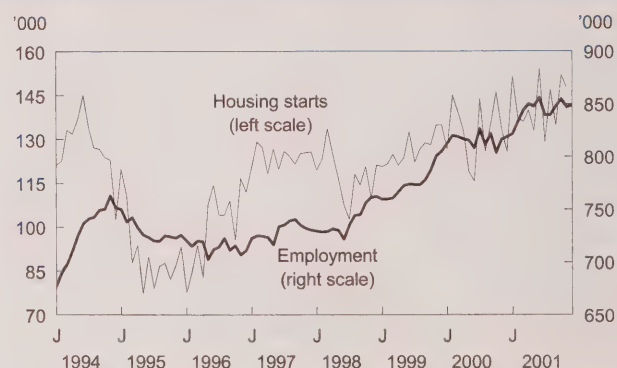
**Chart G: Trade bucked the downward trend...**

Sources: Labour Force Survey, Retail Trade Survey, Wholesale Trade Survey, seasonally adjusted

The strong demand for new and resale homes undoubtedly affected construction (Chart H). In 2001, employment in this area increased by 30,000 or 3.7%, with most of the gain occurring in the first half of the year. Those looking to hire construction workers may have had more difficulty in 2001, as witnessed by the relatively low unemployment rate in construction. At 9.1%, it was well below the rate of 11.4% in 1989, another year of strong activity.

### Young men again most affected

During the recessions of the early 1980s and 1990s, young men were hit harder than other groups. Perhaps it is not surprising, then, that young men seem to have been affected more than any other demographic group by the current economic slowdown.

**Chart H: ...as did construction and housing starts.**

Sources: Labour Force Survey and Canada Mortgage and Housing Corporation, seasonally adjusted



At the end of the year, 52,000 fewer 15 to 24 year-old men were employed, a drop of 4.2% (Table 2). Reduced labour market opportunities for young men led to a rise in youth unemployment. By the end of the year, the youth unemployment rate was 14.0%, 1.5 percentage points higher than in December 2000. Although the youth unemployment rate rose in 2001, it was still well below the peak rate during the 1990s recession (18.4%).

In both the recession of the early 1990s and the current economic slowdown, some of the losses were in similar areas. For example, in both periods, manufacturers shed young men from their payrolls. However, while many male youths lost work in the construction sector in the early 1990s, this was not the case in 2001. In fact, compared with 2000, more young men were

working in construction in 2001. Besides manufacturing, the other major source of job loss for young men was in professional, scientific and technical services.

Problems in the manufacturing, transportation and agricultural sectors led to a slight employment decline among men of 'core' working age (25 to 54). After increasing 55,000 (0.9%) in 2000, the number of core-age men with work dropped 17,000 (-0.3%).

Although core-age female employment rose 13,000 (0.3%) in 2001, this was a marked change from the increase of 113,000 (2.2%) a year earlier. Like youths and core-age men, core-age women were also affected by manufacturing cutbacks; but gains in other industries, such as some areas of health care services, offset the drop in factory employment.

### Older workers expand their numbers

The proportion of people 55 and over who are working continued to rise in 2001. After falling for a number of years, the employment rate of older people began to trend up in 1997. By the end of 2001, about one in four older people were employed, a large increase from 1996 when closer to one in five older people worked.

Older men and older women shared equally in the gains in 2001. However, while all the increase among older men was in full-time employment, older women found part-time work.

### Upward trend in full-time work halts

Full-time employment increased at a strong pace from 1997 to 2000, but with weakness in manufacturing, computer systems design, and other sectors of the economy that demand relatively long workweeks, the number of full-timers levelled off at around 12.3 million.

At the end of 2000, about 1.2 million employees were working paid overtime. By December 2001, this had plummeted 12.0% (-144,000). Over 46% of the decline occurred in manufacturing, where 16.9% of employees were working paid overtime, a drop from 19.0% a year earlier.

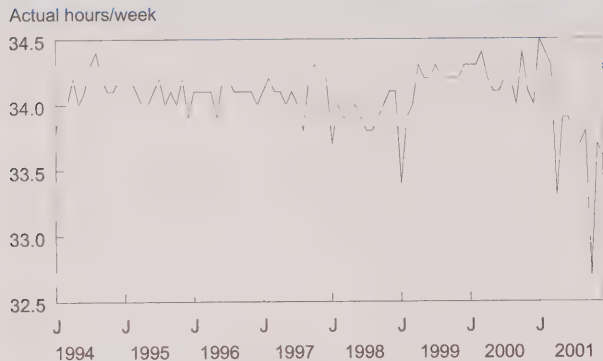
The slowdown in full-time work and overtime led to a drop in average hours worked (Chart I). In January, the average worker was putting in around 34.5 hours per week, but this dropped to 33.6 by December.

**Table 2: Selected labour market estimates**

	December 2001	Change from December 2000
	'000	
<b>Employment</b>	<b>15,091.4</b>	<b>24.7</b>
<b>Men</b>	<b>8,090.0</b>	<b>-28.9</b>
15-24	1,165.4	-51.5
25-54	5,937.3	-16.8
55+	987.3	39.4
<b>Women</b>	<b>7,001.4</b>	<b>53.6</b>
15-24	1,135.5	8.0
25-54	5,190.5	13.0
55+	675.4	32.6
<b>Unemployment</b>	<b>1,318.4</b>	<b>215.1</b>
<b>Men</b>	<b>765.3</b>	<b>161.9</b>
15-24	219.3	30.1
25-54	479.5	112.5
55+	66.5	19.3
<b>Women</b>	<b>553.1</b>	<b>53.2</b>
15-24	154.4	8.7
25-54	352.7	29.2
55+	46.0	15.3
	%	%-point
<b>Unemployment rate</b>	<b>8.0</b>	<b>1.2</b>
<b>Men</b>	<b>8.6</b>	<b>1.7</b>
15-24	15.8	2.3
25-54	7.5	1.7
55+	6.3	1.6
<b>Women</b>	<b>7.3</b>	<b>0.6</b>
15-24	12.0	0.6
25-54	6.4	0.5
55+	6.4	1.8

Source: Labour Force Survey, seasonally adjusted

**Chart I: Declines in full-time work and overtime led to a sharp drop in weekly hours.**



Source: Labour Force Survey, seasonally adjusted

### September 11 and the labour market

Any review of the labour market in 2001 would be incomplete without mentioning how Canadian workers were affected by the September 11 terrorist attacks. While employment in accommodation, restaurants and air transportation, as well as other parts of the economy was undoubtedly affected by the events of September 11, it is impossible to distinguish between the effects of September 11 and those of economic change. The data, however, do allow an interesting look at the labour market during the week of September 11 when a remarkable number of Canadians (83,000) missed part of the workweek because of the attacks.

Along with air transportation employees, those most affected were in the banking and securities sectors, and in manufacturing (Chart J). With the shutdown of major office towers in Toronto and other large cities, and the closure of the Toronto Stock Exchange, many employees in banking and securities trading could not come into work. In manufacturing, border delays forced the temporary shutdown of a number of plants.<sup>3</sup>

### Self-employment drops again

Self-employment fell by 83,000 in 2001. This was the second consecutive yearly decline in self-employment. As in 2000, the drop was associated largely with the decline in farm work.

### December to December versus annual average change

Throughout this analysis, the change in employment and other labour market indicators during 2001 is determined by comparing December 2001 with December 2000.

This approach offers both advantages and disadvantages. The key advantage is that labour market changes are picked up sooner than with annual averages. For example, overall employment in Canada averaged 15.1 million in 2001, 1.1% higher than for 2000. This would seem to indicate modest employment growth during 2001 whereas the trend was flat (Chart A). This flatness is best demonstrated with the December to December change, which can also be thought of as the sum of the monthly employment changes for the year, which amounted to only 25,000 or 0.2%.

The reason the percent change in employment is different according to each method is simple. The December 2000 employment level, at 15.1 million, was higher than the annual average for employment in 2000 (14.9 million), because of strong employment growth at the end of 2000.

Of course, neither December to December nor annual averages are perfect. December to December change can be misleading if either December is unusually high or low. In this case, the greater volatility of the monthly numbers can lead one to misinterpret a trend that might be better described with more stable quarterly or annual average estimates.

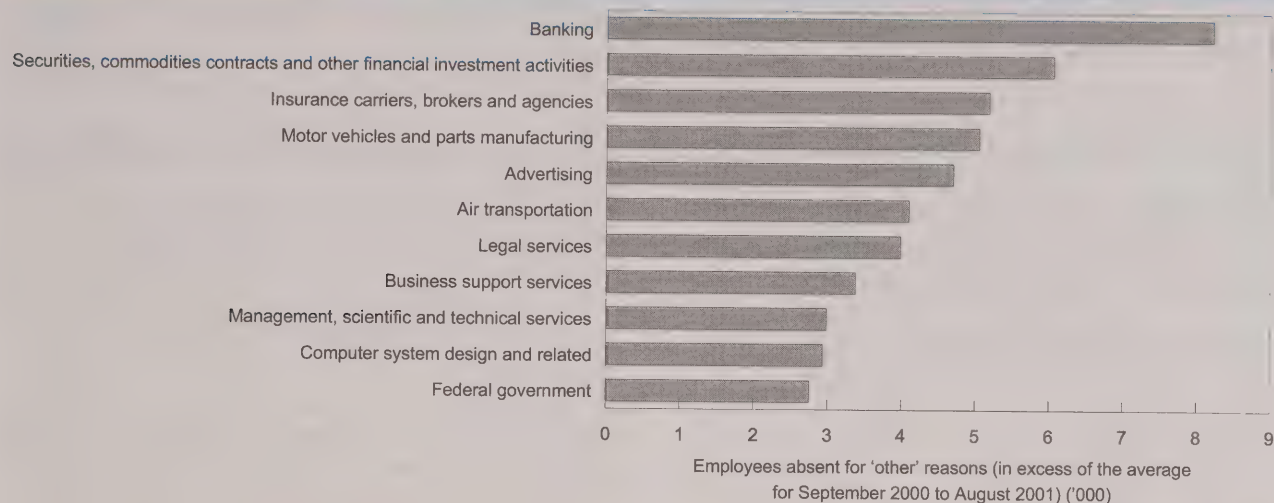
Despite a drop in manufacturing, the number of private sector employees increased by 109,000 in 2001, largely due to added opportunities in retail and wholesale trade. However, the increase was not nearly as great as in recent years. In the previous four years, private sector employees increased their numbers by an average of 307,000.

Hospital employment has driven the trend in the public sector over the last two years. In 2000, increased professional and nursing staff pushed hospital employment up 55,000. However, there was little net change to hospital payrolls in 2001. As a result, the overall trend in the public sector levelled off, after showing strong gains in 2000.

### Lumber troubles B.C., manufacturing hits Ontario

In British Columbia, employment tailed off in the second half of the year. New restrictions to the U.S. market caused many lumber producers to slow or halt operations. The value of wood shipments from B.C. mills in October fell to about three-quarters of its peak in early 2000. As a result, by the end of the year logging and wood manufacturing employment was down sharply.



**Chart J: Financial industries were the hardest hit by absences in the week of September 11.**

Source: Labour Force Survey, not seasonally adjusted

Employment in the province was also down in some other industries at the end of the year, leading to a large decline from December 2000 to December 2001 (Table 3). However, some of this drop can be attributed to unusually high employment estimates in British Columbia at the end of 2000. Perhaps a better indicator of the trend in employment over 2001 is the change in employment from the fourth quarter of 2000 to the same quarter a year later—still a large drop of 46,000 (-2.3%). Falling employment caused unemployment to rise, and by December the rate hit 9.7%, 2.6 percentage points higher than at the start of the year.

About two-thirds of the national drop in manufacturing employment was concentrated in Ontario. Motor vehicle shipments in the province fell, as did the production of computers and electronics. By the end of the year, Ontario had an estimated 83,000 fewer factory jobs, a drop of 7.1%, erasing all the gains made the year before.

**Table 3: Employment by province**

	December 2001*	Change from December 2000*		2001 average	Change from 2000	
	'000	'000	%	'000	'000	%
<b>Canada</b>	<b>15,091.4</b>	<b>24.7</b>	<b>0.2</b>	<b>15,076.8</b>	<b>167.1</b>	<b>1.1</b>
Newfoundland and Labrador	214.4	9.7	4.7	211.3	6.8	3.3
Prince Edward Island	66.3	1.0	1.5	65.9	1.4	2.2
Nova Scotia	427.6	2.2	0.5	423.3	3.8	0.9
New Brunswick	336.9	-1.4	-0.4	334.4	0.0	0.0
Quebec	3,486.8	35.2	1.0	3,474.5	36.8	1.1
Ontario	5,970.6	10.1	0.2	5,962.7	90.6	1.5
Manitoba	565.5	9.3	1.7	557.9	3.5	0.6
Saskatchewan	465.9	-13.3	-2.8	472.3	-12.7	-2.6
Alberta	1,644.2	30.9	1.9	1,632.1	43.9	2.8
British Columbia	1,913.3	-59.0	-3.0	1,942.4	-6.7	-0.3

Source: Labour Force Survey  
\* Seasonally adjusted.

The poor performance of the manufacturing sector in Ontario led to a change in the overall employment trend for the province. Total employment was up only 10,000 (0.2%) from December to December, a sharp change from 2000 when employment rose 189,000 (3.3%). The lack of job

growth in 2001 pushed the unemployment rate up 0.9 percentage points to end the year at 6.9%.

In every major metropolitan area in Ontario, labour market conditions worsened over 2001. In Toronto, the employment rate fell 0.4 percentage points over 2001, to

end the year at 65.0%. In Ottawa-Hull, where high-tech layoffs had a big effect on the labour market, the rate fell 1.6 points to 65.5% in December.

### Weakness in Saskatchewan and New Brunswick

Hit hard by falling farm employment, employment in Saskatchewan fell for the second consecutive year. Over 2001, employment in the province dropped 13,000 or about 3%. Saskatchewan very often has the lowest unemployment rate in the country, but in 2001 the rate averaged 5.8%, well above the rates in neighbouring Alberta (4.6%) and Manitoba (5.0%).

Following gains in 2000, employment in New Brunswick was unchanged in 2001 as losses early in the year were offset by later gains. The lack of job growth pushed the annual unemployment rate to 11.2%, an increase of 1.2 percentage points.

### A better labour market in Montréal

Employment in Montréal increased strongly over 2001. In December, 60.0% of the city's working-age population was employed, an increase of 0.8 percentage points from the start of the year. While 45,000 more people were employed, increased labour market participation pushed Montréal's unemployment rate to 9.8% by December, 2.0 percentage points higher than a year earlier.

Since almost half the working-age population of Quebec is concentrated in Montréal, the improved labour market in Montréal drove the overall trend for the province. Compared with the previous December, employment for the province was up 35,000 in December 2001 (1.0%). While employment rose, increased labour force participation drove the unemployment rate for Quebec to 9.7% at the end of the year, up 1.7 percentage points.

### Oil patch drives Alberta

Although the trend slowed toward the end of the year, strong job gains were made in the Alberta oil patch in 2001. This more than offset losses in agriculture and manufacturing, leading to an overall increase of 31,000 in employment in 2001 (1.9%). This strong improvement in the number of jobs was enough to ensure an unemployment rate that averaged 4.6%, lower than any other province.

### Employment rate highs

Employment also rose in Manitoba during 2001. On average for the year, the employment rate in Manitoba was 64.7%, the highest since at least 1976.<sup>4</sup> While young people in Manitoba had a harder time finding work in 2001, employment among adults rose.

With the exception of New Brunswick, employment rates in the Atlantic provinces also hit historic highs in 2001. The strongest employment gains were made in Newfoundland and Labrador, where employment in the last quarter of the year was 8,000 (3.7%) higher than a year earlier. Much of this gain was concentrated in educational services, and retail and wholesale trade.

Compared with the last quarter of 2000, employment in the fourth quarter of 2001 in Prince Edward Island was up 2,000 (3.1%). With more jobs to be had, the employment rate in P.E.I. hovered around 60% all year, up from the 59% range in the previous year.

The labour market in Nova Scotia also improved during 2001. During the last quarter, 429,000 people in the province were employed, up 7,000 (1.7%) from a year earlier. On average for the year, the employment rate was 56.3%, the highest on record for the province. However, labour market participation also increased, pushing up the annual average unemployment rate to 9.7%.

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### Perspectives

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#### ■ Notes

1 For more information, see *The NBER's Business-Cycle Dating Procedure*. <<http://www.nber.org/cycles/recessions.pdf>>. Released January 10, 2002. (Accessed January 16, 2002). This is an update of a paper initially published on November 26, 2001.

2 The drop in farm employment will be the subject of a more detailed study in an upcoming issue of *Perspectives on Labour and Income*.

3 For more information, see "The labour market in the week of September 11" by G. Bowlby, in *Perspectives on Labour and Income* 13 no. 4 (Winter 2001): 14-18.

4 The Labour Force Survey began in 1946 but has changed the way it measures employment and unemployment. The current data are compatible only with those collected since 1976.



# Wealth inequality

René Morissette, Xuelin Zhang and Marie Drolet

**T**HE DISTRIBUTION OF INCOME has attracted considerable interest in most OECD countries including Canada. In this country, individual earnings inequality has risen since the beginning of the 1980s, at least among male workers (Morissette, Myles and Picot, 1994; Beach and Slotsve, 1996). In contrast, inequality in family disposable income did not increase between the mid-1970s and the mid-1990s (Wolfson and Murphy, 1998). Wealth inequality, however, has not received much attention.

Using the 1984 Assets and Debts Survey and the 1999 Survey of Financial Security, this article examines changes in wealth inequality between 1984 and 1999. Most of the analysis uses three different samples: all families, all families except those in the top 1% of the wealth distribution, and all families except those in the top 5% of the distribution (see *Data sources and definitions*).

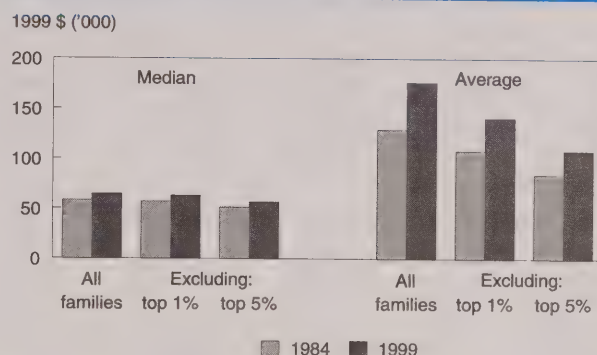
## Average and median wealth

Between 1984 and 1999, real (that is, adjusted for inflation) median wealth grew by roughly 10% (Chart A). Real average wealth rose between 28% and 37%, depending on the sample. Excluding the top 1% of families lowered the growth rate of average wealth from 37% to 31%, indicating that the choice of sample is important. The growth in median and average wealth occurred despite an increase in the percentage of families with zero or negative wealth (11% in 1984 versus 13% in 1999).

Because older families have had more time to accumulate savings, wealth increases with the age of the major income recipient, at least until age 65 (Table 1). Shift-share analysis reveals that between 30% and 39%

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**Chart A: Median and average wealth grew despite an increase in families with zero or negative wealth.**



Sources: Assets and Debts Survey; Survey of Financial Security

of the growth in average wealth appears to be related to the aging of families. The rest is caused by growth in average wealth within age groups.

## Did wealth inequality increase?

Although some segments of the population enjoyed increases in real wealth, others did not—with the result that between 1984 and 1999, wealth distribution became more unequal.<sup>4</sup> Real median wealth fell in the bottom three deciles but rose at least 30% in the top three (Table 2). Only families in the upper two deciles of the wealth distribution increased their share of total net worth (Chart B). For the other eight deciles, the share of total net worth fell. These results imply that only families in the upper two deciles saw their average wealth increase faster than overall average wealth.

Wealth inequality did not rise uniformly. As measured by the Gini coefficient, it increased much more among non-elderly couples with children and among lone-parent families than among unattached individuals and non-elderly couples with no children (Table 3). Among

**Table 1: Average wealth by age of major income recipient**

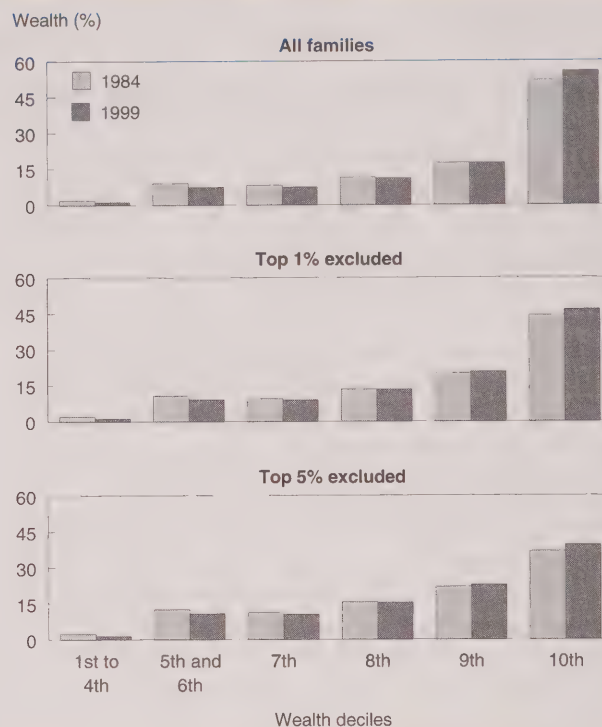
	Average wealth		
	1984	1999	Change
	1999 \$		%
<b>All families</b>	<b>128,900</b>	<b>176,100</b>	<b>36.6</b>
Less than 25	32,300	32,900	2.0
25 to 34	69,900	67,300	-3.8
35 to 44	137,600	151,900	10.4
45 to 54	202,400	247,800	22.4
55 to 64	210,300	302,900	44.0
65 or over	140,700	211,900	50.5
<b>Top 1% excluded</b>	<b>107,900</b>	<b>140,900</b>	<b>30.5</b>
Less than 25	31,700	24,600	-22.5
25 to 34	61,900	58,500	-5.5
35 to 44	114,000	118,500	3.9
45 to 54	158,800	190,100	19.7
55 to 64	176,400	234,200	32.8
65 or over	122,600	185,100	50.9
<b>Top 5% excluded</b>	<b>84,300</b>	<b>108,100</b>	<b>28.2</b>
Less than 25	24,100	16,500	-31.8
25 to 34	51,400	49,400	-3.9
35 to 44	93,100	97,700	4.9
45 to 54	125,100	141,900	13.4
55 to 64	129,700	167,900	29.5
65 or over	97,000	147,200	51.7

Sources: Assets and Debts Survey; Survey of Financial Security

non-elderly couples with children under 18, real average wealth fell roughly 15% in the second quintile but rose about 20% in the fourth quintile and even more in the fifth quintile (Table 4).

### Changes in the wealth structure

The growth of wealth inequality occurred in conjunction with substantial changes in the wealth structure. Real median wealth and real average wealth evolved very differently for different families. First, both rose much more among families whose major income recipient was a university graduate (Table 5). Second, both fell among families whose major income recipient was aged 25 to 34 and increased among those whose major income recipient was aged 55 to 64. The rise was even greater among families whose major income recipient was 65 or over. Third, both increased among Canadian-born families and foreign-born ones living in Canada for 20 years or more, but fell among foreign-born families living in Canada for less than 10

**Chart B: Only families in the upper two deciles increased their share of wealth between 1984 and 1999.**

Sources: Assets and Debts Survey; Survey of Financial Security

**Table 2: Changes in median net worth, by net worth decile**

	Median net worth		
	1984	1999	Change
	1999 \$		%
Bottom	-1,800	-5,700	...
Second	700	100	-85.0
Third	6,700	5,900	-12.2
Fourth	21,400	22,700	6.2
Fifth	45,400	49,600	9.3
Sixth	72,200	81,500	12.9
Seventh	104,800	129,000	23.1
Eighth	147,800	192,500	30.3
Ninth	222,900	299,400	34.3
Top	464,400	628,100	35.3

Sources: Assets and Debts Survey; Survey of Financial Security



**Table 3: Gini coefficient by family type**

	1984	1999	Change %
<b>Unattached individuals</b>			
Elderly	0.647	0.655	1.2
Non-elderly	0.853	0.868	1.8
<b>Non-elderly couples</b>			
No children or other relatives	0.666	0.695	4.4
With children under 18*	0.647	0.707	9.3
With children 18 and over or other relatives**	0.540	0.614	13.7
Elderly couples with no children or other relatives	0.540	0.541	0.2
Lone-parent families	0.807	0.897	11.2
Other family types	0.667	0.650	-2.5

Sources: Assets and Debts Survey; Survey of Financial Security

\* At least one child of the major income recipient is under 18.

Other relatives may also be in the family.

\*\* No children are under 18.

years. Fourth, both increased faster among non-elderly couples with no children than among non-elderly couples with children under 18.

In many population sub-groups, real median wealth grew much more slowly than average wealth. For instance, among families whose major income recipient was aged 25 to 34, real median wealth fell 36% while real average wealth fell only 4%. Similarly, non-elderly couples aged 25 to 54 with children under 18 experienced almost no change in their real median wealth but enjoyed an increase of 30% in their real average wealth (Chart C).<sup>5</sup>

Young couples with children under 18 with a major income earner aged 25 to 34 experienced drastic changes. Their real median and average wealth fell 30% and 20%, respectively. The percentage of these couples with zero or negative wealth rose from 9.5% in 1984 to 16.1% in 1999. The decline in median wealth reflects a 39% decrease in net equity on the principal residence, which more than offset a 12% increase in financial wealth.<sup>6</sup>

Among families whose major income recipient was between 25 and 34, the decline in real median wealth was unlikely caused solely by a decrease in real median after-tax income. While the former dropped by 36%, the latter fell by only 7%.<sup>7</sup> However, growth rates of average wealth and average after-tax income diverge

**Table 4: Changes in average net worth of non-elderly couples with children under 18\*, by quintile**

	Average net worth		
	1984	1999	Change 1999 \$ %
<b>All non-elderly couples with children under 18</b>			
Bottom	100	-3,300	...
Second	34,800	29,800	-14.4
Third	77,900	80,500	3.4
Fourth	141,000	170,200	20.7
Top	493,000	703,500	42.7
<b>Top 1% excluded</b>			
Bottom	-100	-3,400	...
Second	34,300	29,200	-14.9
Third	76,600	78,800	2.8
Fourth	137,700	165,600	20.3
Top	383,200	494,400	29.0
<b>Top 5% excluded</b>			
Bottom	-700	-4,000	...
Second	32,000	26,800	-16.1
Third	71,800	72,400	0.7
Fourth	126,200	149,000	18.1
Top	269,500	349,300	29.6

Sources: Assets and Debts Survey; Survey of Financial Security

\* At least one child of the major income recipient is under 18.

to a much lesser extent (-4% and 1%, respectively). Inheritances and *inter vivos* transfers (for example, parental financing of education or of a house down payment) are unlikely to be factors since the parents in 1999 are unlikely to be poorer than those in 1984.

In contrast, the dramatic increase in real median wealth and average wealth (56% and 51%, respectively) of families whose major income recipient was 65 or older likely reflects a combination of factors: larger inheritances possibly received by the 1999 respondents; higher income from private pensions; and higher income from the Canada or Quebec Pension Plan, Guaranteed Income Supplement, or Old Age Security.

In summary, families whose major income recipient was a new entrant to the labour market—that is, a young individual or a recent immigrant—lost ground relative to older families. Furthermore, within a given age group, families whose major income recipient did not have a university degree lost ground relative to families headed by a university graduate.<sup>8</sup>

**Table 5: Median and average wealth by characteristics of the major income recipient, all families**

	Median wealth			Average wealth		
	1984	1999	Change	1984	1999	Change
	1999 \$		%	1999 \$		%
<b>Education</b>						
Not a university graduate	52,800	54,100	2.4	119,300	145,300	21.7
University graduate	99,600	118,000	18.4	189,300	289,500	52.9
<b>Age</b>						
24 or younger	3,100	200	-95.1	32,300	32,900	2.0
25 to 34	23,400	15,100	-35.5	69,900	67,300	-3.8
Not a university graduate	21,200	11,100	-47.6	62,600	49,800	-20.3
University graduate	41,200	30,900	-25.0	102,100	112,100	9.8
35 to 54	88,400	78,400	-11.4	164,900	194,300	17.8
Not a university graduate	80,500	65,800	-18.2	153,200	156,000	1.8
University graduate	130,300	144,700	11.1	218,700	312,300	42.8
35 to 44	73,500	60,000	-18.4	137,600	151,900	10.4
45 to 54	124,000	115,200	-7.1	202,400	247,800	22.4
55 to 64	129,100	154,100	19.4	210,300	303,900	44.5
65 or older	80,800	126,000	56.0	140,700	211,900	50.5
<b>Immigration status</b>						
Canadian-born	53,900	60,500	12.1	122,900	168,700	37.3
In Canada 20 years or more	120,000	171,300	42.7	194,800	285,600	46.6
In Canada 10 to 19 years	68,000	44,500	-34.6	114,400	140,800	23.1
In Canada less than 10 years	17,600	13,100	-25.7	90,100	75,700	-16.0
<b>Family type</b>						
Unattached individuals						
Elderly	41,400	70,000	69.2	78,700	138,100	75.5
Non-elderly	5,800	6,000	4.0	47,200	63,900	35.3
Couples						
No children	71,500	101,600	42.1	151,200	244,200	61.5
Children under 18	77,900	77,800	-0.1	149,300	195,900	31.2
Children 18 and over	155,800	167,400	7.5	251,500	312,500	24.3
Elderly couples, no children	121,100	177,500	46.6	198,500	280,500	41.3
Lone-parent	1,900	3,700	95.5	39,400	63,800	61.8
Other family types	74,200	112,700	51.9	145,100	210,200	44.9

Sources: Assets and Debts Survey; Survey of Financial Security

## Aging and wealth inequality

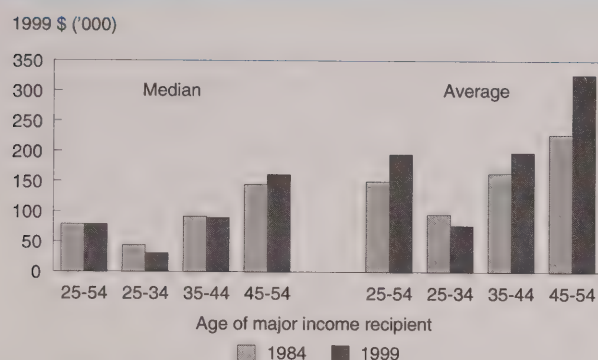
The substantial changes in family structure over the last two decades may have affected wealth inequality. Specifically, the growing proportion of unattached individuals and lone-parent families, which generally have lower-than-average wealth, may have contributed to the growth of wealth inequality. Accordingly, the 1999 data were re-weighted so that the relative importance of various types of families was equal to that observed in 1984.<sup>9</sup> The inequality measures resulting from this re-weighting were then calculated.

The inequality measures used were the Gini coefficient, the coefficient of variation (CV), and the exponential measure. While the Gini coefficient is sensitive to changes in the middle of the wealth distribution, the coefficient of variation is sensitive to changes at the top, and the exponential measure is sensitive to changes at the bottom (Table 6).

Whether or not changes in family structure tended to increase wealth inequality cannot be said with certainty. When all families are considered, the effect is ambiguous. Applying the 1984 family structure to the



**Chart C: For non-elderly couples with young children,\* median wealth increased less than average wealth.**



Sources: Assets and Debts Survey, Survey of Financial Security  
 \* At least one child of the major income recipient is under 18.

re-weighted with the 1984 age structure, using six age groups. If the 1984 age structure had prevailed in 1999, wealth inequality would have been higher than it was in 1999. Hence, the aging of the population tended to reduce wealth inequality.

What would wealth inequality have been in 1999 if permanent income<sup>12</sup> and other attributes of families had remained at their 1984 levels and families had kept their 1999 net worth? The other attributes to be considered are age of major income recipient (five age groups), education level of major income recipient (two levels), a lone-parent family indicator, family size, provincial controls, and a rural-urban indicator.<sup>13</sup> For all three samples, the hypothetical inequality measures for 1999 are always higher than the actual inequality measures. This means that if the distribution of permanent income and other family attributes had remained at their 1984 level and families had kept the net worth observed in 1999, wealth inequality would have been higher than it was in 1999. At the very least, this suggests that permanent income and other socio-demographic characteristics as measured with cross-sectional data are not major factors behind the growth of wealth inequality.

1999 data decreases the Gini coefficient and the exponential measure, but increases the CV (compared with their 1999 actual values). For the sample in which the top 1% of the wealth distribution is excluded, wealth inequality would have been lower in 1999 if the composition of families had remained the same as in 1984. For this sample, changes in family structure accounted for 14% to 22% of the growth in wealth inequality.<sup>10</sup> For the sample in which the top 5% of the wealth distribution is excluded, changes in family structure accounted for 25% and 23% of the growth in the Gini coefficient and the CV, respectively.<sup>11</sup>

The aging of the population may also have affected wealth inequality. However, its effect is unclear since it is associated with a decline in the relative importance of young families, who have lower-than-average wealth, and an increase in the relative importance of older families, which tend to have higher-than-average wealth. To assess the effect of aging, the 1999 data were

**Table 6: Levels of wealth inequality**

	Actual data		1999 based on 1984		
	1984	1999	Family type	Age structure	Income and other family characteristics
<b>All families</b>					
Gini	0.691	0.727	0.724	0.750	0.740
CV	2.325	3.146	3.157	3.261	3.244
Exponential	0.531	0.560	0.558	0.590	0.603
<b>Top 1% excluded</b>					
Gini	0.646	0.675	0.669	0.702	0.695
CV	1.429	1.517	1.498	1.613	1.597
Exponential	0.542	0.556	0.554	0.612	0.676
<b>Top 5% excluded</b>					
Gini	0.605	0.637	0.629	0.668	0.661
CV	1.169	1.255	1.235	1.341	1.326
Exponential	0.906	0.838	0.848	1.074	1.312

Sources: Assets and Debts Survey; Survey of Financial Security

## Data sources and definitions

The 1984 **Assets and Debts Survey (ADS)** was a supplement to the May 1984 Survey of Consumer Finances. The 1999 **Survey of Financial Security (SFS)** was conducted from May to July 1999. For both surveys, the sample was based on the Labour Force Survey frame and represents all families and individuals in Canada except residents of the territories, members of households located on Indian reserves, full-time members of the Armed Forces, and residents of institutions.<sup>1</sup> Data were obtained for all family members aged 15 and over.

Some differences between the two surveys are worth noting. First, in ADS, all information on components of assets (except housing) and debts were collected for each member of the family aged 15 years and over and then aggregated at the family level. In contrast, in the SFS, information was collected directly at the family level. Second, unlike ADS, the SFS contained a supplementary 'high-income' sample (consisting initially of about 2,000 households), which was included to improve the quality of wealth estimates.<sup>2</sup> The final sample of ADS included 14,029 families, and the SFS sample 15,933. Families include unattached individuals.

Because records of the current value of assets and debts are not as readily available as records of income, the quality of wealth data is viewed as lower than the quality of income data. Also, the value of real assets (such as housing and vehicles) is judged to be of higher quality than that of financial assets.

To make the concept of wealth comparable between the two surveys, contents of the home, collectibles and valuables, annuities, and registered retirement income funds, which were not included in the 1984 survey, were excluded from the 1999 data.

The wealth of a family is defined as the difference between the value of its total assets and the amount of its total debts. Excluded are the value of work-related pension plans, and future entitlements to social security provided by the government in the form of Canada or Quebec Pension Plan

benefits or Old Age Security. Also excluded are the family's human capital, measured in terms of the value of the discounted flow of future earnings for all family members.

One particularly difficult issue with wealth data is the measurement of the upper tail of the wealth distribution. Using a variety of data sources, Davies (1993) estimates that, using ADS, the share of total wealth held by the top 1% of families in 1984 could increase from 17% to between 22% and 27% after adjustments. Similarly, the share of total wealth held by the top 5% of families could increase from 38% to between 41% and 46%.

Since this article compares wealth at two points in time, a further complication is that the degree of truncation of the wealth distribution may change over time. More precisely, assume that the true wealth distribution was unchanged between 1984 and 1999. Extending the argument of Davies (1993,160) to the analysis of changes in the wealth distribution, if no Canadian family with wealth over \$10 million consented to an interview in 1984, and if no Canadian family with wealth over \$50 million consented to an interview in 1999, ADS and SFS would show an (incorrect) increase in wealth inequality—which could simply be due to the use of better interviewing techniques in the later survey than in the earlier one.<sup>3</sup> For these reasons, most of the analysis described in this article uses three different samples: all families, all families except those in the top 1% of the wealth distribution, and all families except those in the top 5%.

The **Gini coefficient** and the **exponential measure** are two measures of inequality, which would equal one if one family owned the total wealth of society while all others had zero wealth. Both measures would equal zero in the case of perfect equality—that is, if all families had the same wealth. The **coefficient of variation**, defined as the ratio of standard deviation to the mean, would also equal zero in the case of perfect equality. It would increase—but not necessarily equal one—if one family owned the total wealth of society while all others had zero wealth.

## Explaining wealth inequality

Several factors may have contributed to the growth of wealth inequality. First, young people have been staying in school longer before entering the labour market, thus decreasing the number of years over which they have had significant incomes. This and the greater debt load of students (Finnie, 2001) probably account for part of the decrease in their real median wealth.<sup>14</sup> Second, the booming stock market of the 1990s likely contributed to the rapid revaluation of financial assets observed in Canada over the last decade (Yan, 2001). Since financial assets are held predominantly by families at the top of the wealth dis-

tribution, this revaluation is likely to have contributed to the growth of wealth inequality. Third, easier access to credit or changes in preferences may have induced some low-wealth families to accumulate debt to finance expenditures, thereby decreasing their net worth. Fourth, increases in contributions to RRSPs made by families in the middle of the wealth distribution could have widened the gap between them and poorer families *if* these greater contributions caused an increase in their savings rate. Fifth, differences between low-wealth and high-wealth families in the growth of inheritances and *inter vivos* transfers may also have played a role. These factors cannot be quantified with existing data sets.



## Summary

Wealth inequality increased between 1984 and 1999. The growth was associated with substantial declines in real average and median wealth for some groups, such as young couples with children and recent immigrants.

Only the 10<sup>th</sup> decile (and for some samples, the 9<sup>th</sup> decile) increased their share of total net worth between 1984 and 1999. Wealth inequality increased more among non-elderly couples with children and lone-parent families than among unattached individuals and non-elderly couples with no children.

Real median wealth and real average wealth rose much more among families whose major income recipient was a university graduate than among other families; both fell among families whose major income recipient was aged 25 to 34 and increased among those whose major income recipient was 55 or over.

The aging of the population between 1984 and 1999 had two important effects: it tended to increase the average wealth of Canadians and to reduce wealth inequality.

Young couples with children experienced a 30% decline in their median wealth. This led to a substantial decrease in their net equity on principal residence. Furthermore, a growing proportion had zero or negative wealth and therefore could not rely on savings to provide liquidity in periods of economic stress.

## Perspectives

### Notes

1 These include institutions such as penal institutions, mental hospitals, sanatoriums, orphanages and seniors residences.

2 Having a high-income supplement in 1999 increased the precision of wealth statistics (for example, average, median, and inequality measures) compared to ADS, while still leaving them unbiased (like those of ADS).

3 Weighting procedures cannot correct this problem since no family with wealth over \$10 (\$50) million would be observed in the sample.

4 More precisely, if the bottom 0.5% of the wealth distribution is excluded, one can say unambiguously that wealth inequality rose between 1984 and 1999—that is, the 1999 Lorenz curve lies below the 1984 Lorenz curve at all points of the wealth distribution. See Morissette, Zhang and Drolet (2002) for a detailed analysis.

5 Couples with children under 18 are defined as couples with *at least* one child of the major income earner under 18.

6 Financial wealth is net worth minus net equity in housing and net business equity. Median financial wealth of young couples with children under 18 rose from \$7,200 in 1984 to \$8,000 in 1999. Their median net equity on principal residence fell from \$26,000 in 1984 to \$16,000 in 1999.

7 This statement must be made with caution since changes in wealth depend, among other things, on changes in the set of annual after-tax incomes received in the past, and not only on changes in current after-tax income measured by cross-sectional data. In other words, while current after-tax income dropped by 7%, *accumulated* after-tax income could have dropped by more than 7%.

8 Since there is evidence that financial assets were better reported in 1999 than in 1984 (Morissette, Zhang and Drolet, 2002), the growth rates of wealth observed for groups with growing wealth must be interpreted with caution. They likely represent an upper bound for the true growth rates of wealth of these groups.

9 Families were defined according to 14 categories.

10 If the 1984 family structure had prevailed, the coefficient of variation in 1999 would have been 1.498 rather than 1.517. Hence, 22%—that is,  $(1.517-1.498)/(1.517-1.429)$ —of the growth in the coefficient of variation can be accounted for by changes in family structure.

11 The decrease in the exponential measure for this sample (in the actual data) occurs because the Lorenz curves for 1984 and 1999 cross below the bottom 0.5% of the wealth distribution.

12 A family's permanent income is defined as the predicted income of this unit when the major income recipient is aged 45 and the spouse (if present) age is set equal to what it would be when the major income recipient is aged 45. See Morissette, Zhang and Drolet (2002) for further details.

13 To implement this approach, the 1984 and 1999 data were first pooled. Second, a logit model was estimated in which the dependent variable equals 1 if a family unit with a given level of permanent income and other given attributes was observed in 1984, 0 if it was observed in 1999. Third, the 1999 data were re-weighted by the factor  $(P_{i84}/P_{i99}) \cdot (K_{99}/K_{84})$ , where  $P_{i84}$  and  $P_{i99}$  are the probability of family  $i$  being observed in 1984 and 1999, respectively, and  $K_{99}$  and  $K_{84}$  are the sum of weights for 1999 and 1984, respectively. Fourth, after the 1999 data were re-weighted, the inequality measures were calculated. The explanatory variables used in the logit model include permanent income and other attributes defined above. For further details, see DiNardo, Fortin and Lemieux (1996).

14 Young individuals now get married later, thereby delaying the benefits from the economies of scale associated with cohabitation. However, this may be offset by some young individuals staying longer with their parents or cohabiting in other ways. Similarly, the downward shift in the age-earnings profile of young men (Beaudry and Green, 1997) may have tended to reduce real wealth of young men. However, its effect may have been partly offset by the growing number of dual-earner couples among young families.

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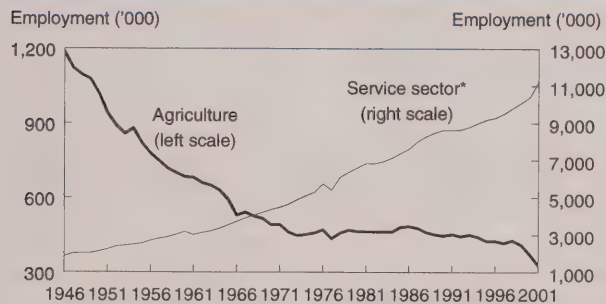
# Farmers leaving the field

Geoff Bowlby

**F**ARMING IS EMPLOYING FEWER and fewer Canadians over time. Where once the labour market was centred around goods-producing industries such as farming and manufacturing, today Canadians are more likely to be employed in the service sector.

Among other factors, rising farm productivity, along with added opportunities in the cities, led to a large exodus from the farm beginning shortly after World War II. In 1946, about 1.2 million people worked on a farm as a main job. Thirty years later, that number had dropped to a little under half a million. The decline slowed for the rest of the century, but employment in other parts of the economy, most notably the service sector, continued to rise (Chart A).

**Chart A: Farm employment declined dramatically after World War II as Canada moved to a services-based economy.**

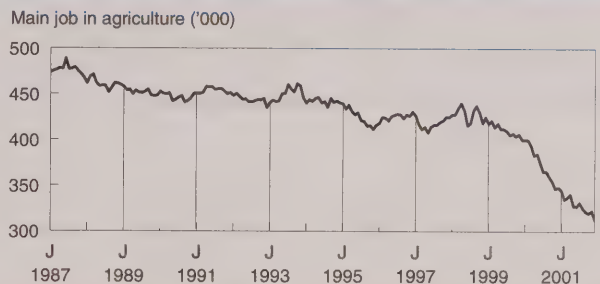


Source: Labour Force Survey  
\* Excludes public administration.

The year 1999 marked the beginning of a more pronounced downward trend when farm employment as a main job plummeted 6% from 1998 (Chart B). In 2000, the rate of decline accelerated, dropping employment by a further 13%. This was followed by

another decline in 2001, so that by the end of the year farm employment was 313,000, 26% below where it had been only three years earlier—the largest drop in about 35 years.

**Chart B: Farm employment dropped sharply from 1999 to 2001.**



Source: Labour Force Survey, seasonally adjusted

However, falling farm employment has not resulted in the large-scale abandonment of farmland. In fact, the experience has been the opposite (Table). The number of hectares planted with major crops such as corn, wheat and hay has never been higher. Between 1998 and 2001, 1.1% more hectares of land were planted with major crops. In general, total production rose, reflecting the seeding of more land and new higher-yielding crop varieties. Poultry meat, egg and milk production has also increased in recent years.

Not all farm output has increased, however. Cattle and pig production have decreased slightly, although these declines are nowhere near the drop in farm employment.

This article has two parts. First, it shows where the decline in farm employment has occurred, and which types of farms and farm workers have been most affected. Second, a number of theories are presented as to why main-job farm employment has declined so dramatically while farm output has not.

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## Key farm output

	Major crops (hectares)	Cattle	Pigs	Poultry	Eggs (dozens)	Milk (kilolitres)
	'000					
1989	32,779	12,457	10,665	390,438	471,715	7,367
1990	32,303	12,560	10,156	406,940	466,028	7,346
1991	32,360	12,843	10,462	411,090	468,187	7,269
1992	32,880	13,025	10,784	408,810	469,719	6,903
1993	33,794	13,252	10,566	430,258	470,671	6,789
1994	34,190	13,924	10,888	486,338	474,459	7,036
1995	34,062	14,730	11,522	486,218	478,591	7,197
1996	33,913	15,051	11,490	501,289	484,914	7,172
1997	34,363	14,910	11,740	516,952	494,269	7,421
1998	34,759	14,706	12,355	539,652	498,847	7,521
1999	34,166	14,447	12,281	569,652	523,161	7,590
2000	35,476	14,416	12,240	590,433	549,711	7,499
2001	35,136	14,635	12,226	..	..	7,561
Change from 1998 to latest year (%)	377 (1.1)	-71 (-0.5)	-129 (-1.0)	50,781 (9.4)	50,864 (10.2)	40 (0.5)

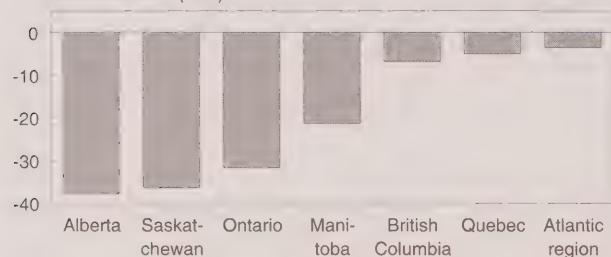
Source: Agriculture Division

## Drop in farm employment—highlights

Although widespread throughout most parts of the country, the decrease in farm employment did not affect all provinces equally. Most affected were Alberta, Saskatchewan and Ontario, where main-job farm employment fell by 30% or more (Chart C). Employment in Manitoba also fell substantially, dropping more than 20% over the three years. Declines appeared equally among both men and women in

Chart C: Farm employment fell most in Alberta, Saskatchewan, and Ontario.

Change in main-job farm employment between December 1998 and December 2001 ('000)



Source: Labour Force Survey

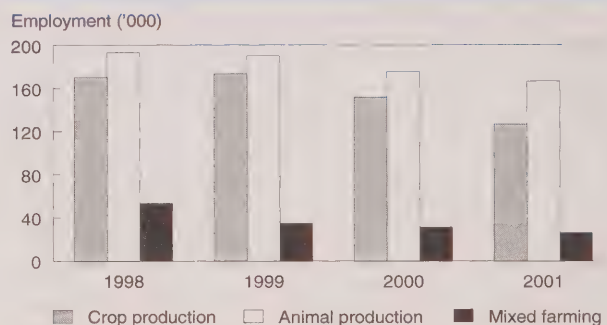
most areas of the country. Employment fell on crop farms more than in other types of farming (Chart D).

An interesting characteristic of the drop in farm employment is the decline among self-employed farmers with no employees (Chart E). This group is more likely to have smaller farms that are run as second jobs. This is important because, as discussed later, some of the decline in main-job farm employment from 1998 to 2001 is thought to be the result of more farms being run as second jobs.

## Why is farm employment declining?

A host of reasons, many of which are interrelated, may explain why farm employment is falling.

Chart D: Crop farming experienced the steepest downward trend.

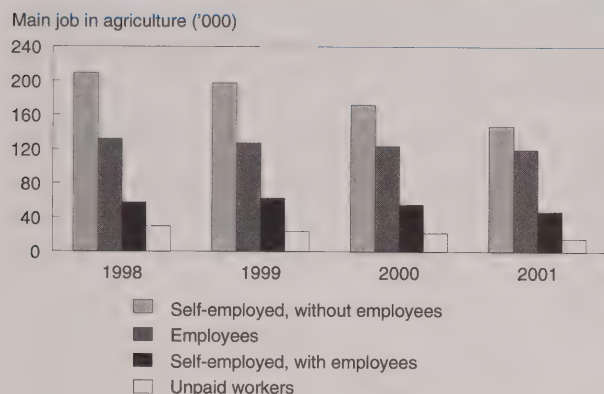


Source: Labour Force Survey

Fewer farms, rising farm productivity, better non-farm employment opportunities resulting in more farming being conducted as a second job, and more off-farm work for farm spouses are all contributing factors. The last two may be particularly significant since the timing of the drop in main-job farm employment coincides with a period of significant increase in off-farm job opportunities.



**Chart E: Employment on farms with no employees fell fastest.**



Source: Labour Force Survey

#### Fewer but larger farms, rising farm labour productivity

One would assume that dramatically falling farm employment would result from a large drop in the number of farms. The number of farms fell sharply between 1951 and 1976 and then more slowly for the rest of the century, following the same pattern as farm employment (Chart F).

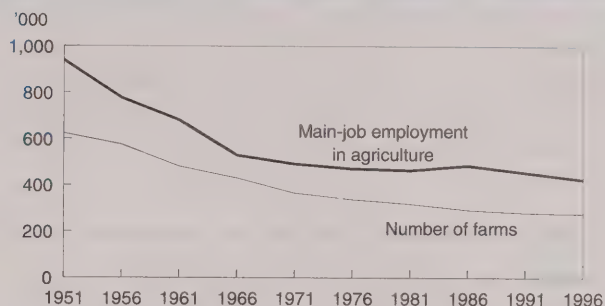
However, as the number of farms declined, the average farm size increased. In effect, individual farmers have been farming more land and producing more food. Past trends show a correlation not only between the number of farms and main-job farm employment, but also between main-job farm employment and labour productivity.

In the mid 1990s leading up to the decline in main-job farm employment, new farm and machinery investment increased substantially, resulting in some substitution of capital for labour (Chart G). As farmers invested, the total value of farm machinery and equipment began to rise sharply in 1994. By 2000, the value had risen 53%, the largest increase since the 1970s.

#### More second-job farming activity

Although farm productivity has probably increased, it would seem unlikely that farms could produce a similar amount as three years earlier with 26% fewer workers. While productivity increases contributed to the downward trend in the Labour Force Survey (LFS) measurement of farm employment, it is also likely that many individuals are increasingly operating their farms as second jobs. The LFS industry and occupation data

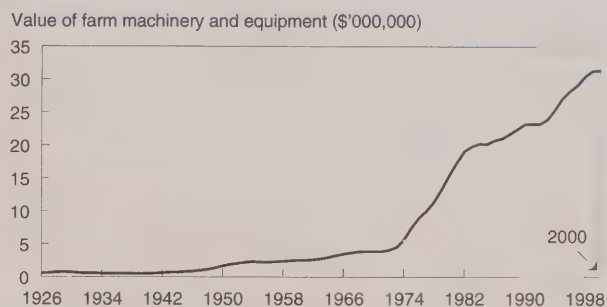
**Chart F: Labour Force Survey farm employment declines mirrored Census farm counts.**



Sources: Labour Force Survey and Census of Agriculture

are based on a person's main work activity. When the LFS shows a decrease in agricultural employment, it means that fewer people are employed on farms as their main job. The farm may still operate but as the farm operator's second job. As opportunities for farmers to work more hours in other jobs increase, some farm operators may find that their main job becomes, for example, truck driver instead of farmer, even though the farm continues to produce the same amount of beef, milk or poultry.

**Chart G: Farmers mechanized in the years leading up to accelerated drops in main-job farm employment.**

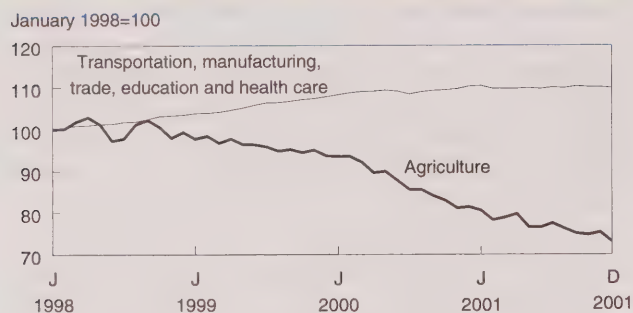


Source: Agriculture Division

Certainly employment growth outside agriculture was very strong between 1998 and 2000. If farm operators had switched their main activity from farming, one would expect relatively strong employment

growth in industries that require similar skills (Chart H). According to the 1998 Survey of Labour and Income Dynamics, roughly 15% of people employed in agriculture had an off-farm job—one of the highest rates of multiple job-holding of any industry. Of the farmers who held multiple jobs, over half worked in transportation and warehousing (12%), manufacturing (12%), retail and wholesale trade (11%), health care and social assistance (10%), or educational services (9%).

**Chart H: As main-job employment fell in farming, it rose in the five industries that employ similar skills.**



Source: Labour Force Survey, seasonally adjusted

Between 1998 and 2000, as main-job employment fell in agriculture, it rose in transportation (11%), manufacturing (12%), trade (11%), health and social assistance (9%), and education (4%). This suggests that off-farm job opportunities for farm owners improved dramatically—at least during 1999 and 2000.

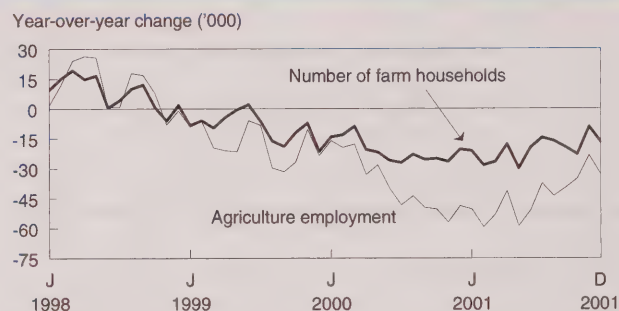
In 2001, labour market conditions took a turn for the worse. Opportunities for off-farm work diminished, but still agricultural employment continued to decline—albeit at a reduced pace from 2000. Although important, rising off-farm work is clearly not the only factor that determines the number of main-job farmers.

#### Fewer main-job farmers per household as spouses less likely to combine their efforts

Not only have principal farm operators switched out of farming as a main activity, but spouses and children appear to have moved to off-farm work as well. While the number of farming households (households in which at least one person is mainly employed in

agriculture) fell, it fell less than overall employment in the industry (Chart I). As a result, the number of people mainly employed in agriculture per farming household dropped as well. In 1998, in every 100 farming households, about 143 people were mainly employed on the farm. By 2001, this number had dropped to 131.

**Chart I: Main-job employment in agriculture fell faster than the number of farming households.**



Source: Labour Force Survey, not seasonally adjusted

Most of the drop was caused by fewer spouses combining their efforts on the farm (Chart J). In 1998, approximately 36% of farmers had a spouse who was also employed in agriculture, a figure that dropped to 27% by 2001. At the same time, the percentage of farmers with a spouse mainly employed off the farm climbed from 22% to 24%.

**Chart J: Fewer spouses are combining their efforts on the farm.**



Source: Labour Force Survey



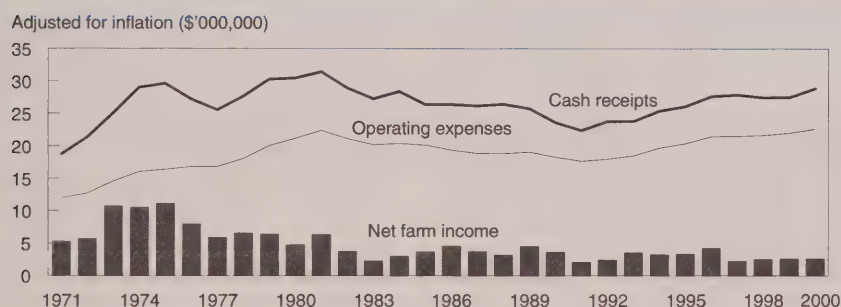
### Lack of profit growth

So far this article has suggested that main-job farm employment is falling because farms are consolidating and mechanizing, because farm owners are accepting more non-farm employment and changing their main job from agriculture to something else, and because fewer spouses are combining their farming efforts. Are these trends a result of farmers being pushed out of farming, or is this group being pulled to more attractive opportunities in other areas? Probably the main 'pull' factor has been the very strong demand for workers in industries such as manufacturing and transportation where farmers can apply their skills.

One of the key 'push' factors could be that, in general, farmers have not seen an increase in profits since 1996 (Chart K). Farm operating expenses have risen to all-time highs, offsetting the modest gains in cash receipts. As a result, net farm income was \$2.6 billion in 2000 (adjusted for inflation), about the same as in the previous three years and only a fraction of the \$11.1 billion high set in 1975.

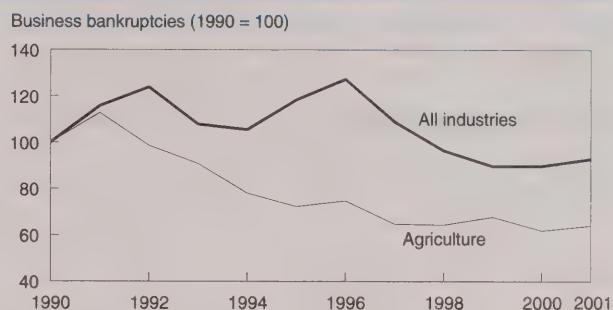
While some are undoubtedly being pushed off the farm by rising costs and low profits, farm bankruptcies have declined in recent years (Chart L). After hitting 471 in 1991, by 2001 the number of farms declaring bankruptcy was 271. Weak net incomes are not leading to more bankruptcies. Farmers appear to be coping with current economic conditions by making an orderly exit from the sector, or rebalancing their employment by switching their main job to something other than agriculture.

**Chart K: Lack of farm profit growth may be pushing some people off the farm...**



Sources: Agriculture Division, Consumer Price Index

**Chart L: ...but farm incomes do not seem to be pushing people into bankruptcy.**



Source: Industry Canada

### An aging field

One factor that is neither 'push' nor 'pull' is age. The median retirement age in agriculture is 66 (Chart M). Even though this is much higher than the overall median retirement age of 62, a much higher proportion of farmers are approaching or have surpassed the normal retirement age.

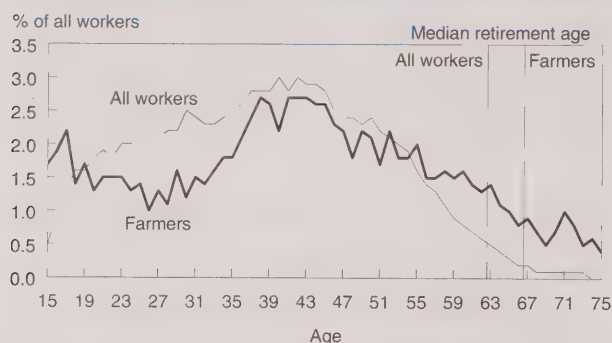
### Summary

Farm size and farm labour productivity have undoubtedly increased, but probably not to an extent that would explain all the drop in farm employment. The other source of the decline is probably more second-job farm activity as farmers increased their hours of non-farm employment between 1999 and the end of 2001.

This likely move to more second-job farming has coincided with fewer spouses and children working on the farm as their main job. So, while fewer and fewer households have at least one member employed on the farm as their main job, the number of farming couples mainly employed has also fallen sharply.

The factors driving falling farm employment as measured by the Labour Force Survey are complex. The decision to enter or leave farming is complicated but is likely a

**Chart M: Farmers are older than average and more are approaching or have surpassed the normal retirement age.**



Source: Labour Force Survey

function of a number of 'push' and 'pull' factors, as well as a person's age. Employment opportunities in industries where farmers can easily apply their skills have grown in recent years, luring workers off the farm. Farm profits have remained unchanged

## Defining farm employment

This analysis is based on the monthly Labour Force Survey (LFS). Designed primarily to count the number of people who are employed, unemployed or not in the labour force, the LFS asks additional questions on the industry and occupation of the respondent's main job (the one in which most time is spent per week).

Therefore, a farm worker is someone who works on a farm as a main job. A farm operator who runs or works on a farm as a second job is not included. Such individuals would be assigned to the industry of their main job.

(and historically low) for a number of years, perhaps forcing some into other work. Age may also be playing a part in the decision to leave farming as a main activity. Farmers as a group are relatively old, with a large proportion approaching retirement age in an occupation that is often dangerous and physically demanding.

## Perspectives

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# The male-female wage gap

Marie Drolet

**T**HE ISSUE OF male-female wage inequality is complex and requires analysis from a number of different perspectives. The goal of this article is *not* to provide a single, definitive estimate of the wage gap, but to demonstrate the importance of measurement, decomposition techniques, and differences in the gap within the distribution of wages.

## Measures of earnings

For three decades, the Survey of Consumer Finances (SCF) was the primary source of data on the earnings of Canadians. As of 1997, the Survey of Labour and Income Dynamics (SLID) replaced the SCF. According to the SCF, among full-year, full-time (FYFT) workers, women working full-year, full-time earned 72.5% of what men earned (Table 1). Using the 1997 SLID, the ratios varied from 61.6% (using annual wages and salaries for all employees in their main job) to 80.4% (using the hourly wage rate for all employees in all jobs).

## Why the large differences in earnings ratios?

The SLID ratio, based on the hourly wages of all employees, was eight percentage points greater than

**Table 1: Female-male earnings ratios, 1997**

Source	Measure	Coverage	Earnings		Female-male ratio
			Men	Women	
			\$		%
SCF	Annual	FYFT workers	42,600	30,900	72.5
SLID	Annual	FYFT employees	44,800	30,600	68.3
SCF	Annual	All workers	33,200	21,200	63.8
SLID	Annual	All employees	38,900	24,000	61.6
SLID	Hourly	All employees	18.81	15.12	80.4
SLID	Hourly	FT employees	18.92	15.31	80.9

Sources: Survey of Consumer Finances; Survey of Labour and Income Dynamics

the SCF ratio for full-year, full-time workers. This sizeable disparity arises from several conceptual differences between SLID and the SCF:

First, the ratios are for different populations of workers. The SCF ratio considers both employees and the self-employed, while the SLID ratio reflects only employees. Analyses based solely on FYFT workers tend to exclude a significant portion of the labour force—especially women. According to 1997 SLID data, roughly 76% of men and 60% of women worked full year, full time. Ratios based on hourly wage rates avoid these definition problems and are representative of female-male pay differences.

Second, the definition of *earnings* is different for each survey. SCF annual earnings include wages and salaries from all jobs, and net income from self-employment. SLID annual earnings include only wages and salaries. Hourly wage rates are job-specific, thus facilitating comparisons between the wages of men and women in comparable jobs.

Third, pay ratios based on annual earnings do not accurately account for differences in work volume. Even among men and women working full year, full time, the number of hours worked per week varies considerably. According to the Labour Force Survey, men employed full time in 1997 worked 43.1 hours per week, while women worked 39.0 hours per week. Ratios based on hourly wage rates overcome this problem.

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The remainder of this article focuses on 1997, when women earned on average \$15.12 per hour and men earned \$18.81. In other words, women earned about 80% of the average male hourly wage.<sup>1</sup>

## Measures of experience

A major limitation of previous studies is the lack of sufficient information on the determinants of the wage gap. One such determinant is the quantity of lifetime work experience. Often age or the Mincer measure of experience (age – schooling – 6) is used as a proxy for the acquisition of general human capital skills or for potential work experience. However, proxy measures tend to overstate the *actual* work experience of women by not accounting for interruptions related to parenting (that is, complete withdrawals from the labour market) or for any restrictions on the number of hours worked per week or the number of weeks worked per year.

SLID collects information on work experience starting with the first full-time paid job. It asks respondents the years in which they worked at least six months (full year), as well as the years in which they did not work at all, since starting to work full time. The remaining years are coded as working part year. Respondents are then asked the years in which they worked six months or more, and if they worked full time (30 or more hours per week), part time, or both. Part-time or summer jobs while in school are not included. From the information provided, a measure of full-year, full-time equivalent (FYFTE) work experience is calculated:

$$\begin{aligned} \text{FYFTE} = & \text{years worked full year, full time} \\ & + 0.5 \cdot (\text{years worked full year, part time}) \\ & + 0.5 \cdot (\text{years worked full year; some full} \\ & \quad \text{time, some part time}) \\ & + 0.25 \cdot (\text{years worked part year, part time or} \\ & \quad \text{part year, full time}) \end{aligned}$$

Men and women bring different work experience to the labour market (Table 2). The Mincer proxy for potential work experience shows little difference in the work experience of men and women (19.5 and 19.1 years respectively). A different story emerges when actual labour market experience is applied. The aver-

## Data source

The data are from the 1997 Survey of Labour and Income Dynamics (SLID). SLID is designed to capture the nature and the pattern of individuals' labour market experiences from the types of jobs they hold, their earnings and selected employer characteristics. However, to get a full picture of economic well-being, SLID also collects information about income, using categories similar to those used by the Survey of Consumer Finances.

Since January 1993, SLID has conducted annual cycles of labour and income interviews with 15,000 to 20,000 households across the country. A new panel is introduced every three years (the second, in 1996) and remains in the survey for six years.

This study looks at employees, aged 18 to 64, who are not enrolled as full-time students during the year. Self-employed individuals, with or without an incorporated business; and individuals with missing data on hourly wages, full-year full-time work experience, years of schooling, or total usual hours worked in the job during the year are excluded. The analysis is based on 28,303 jobs—14,604 held by men and 13,699 held by women.

age FYFTE work experience of men is 18.3 years compared with 14.4 for women. Men also spend a greater proportion of their potential years of work experience working full year, full time (94% versus 75% for women).

**Table 2: Differences in work experience, by sex**

	Men	Women
	Years	
Average age	39.2	39.0
Average years of schooling	13.6	13.8
Mincer proxy for experience:		
Average potential years of work experience (age – schooling – 6)	19.5	19.1
Actual labour market experience:		
Average years of full-year, full-time equivalent work experience (FYFTE)	18.3	14.4
Proportion of potential years of work experience spent working full year, full time	93.8	75.4
	%	

Source: Survey of Labour and Income Dynamics, 1997



In absolute terms, the actual experience of young women is similar to that of their male counterparts but, with age, the gap widens (Table 3). This may be partially because older women (aged 55 to 64 in 1997) were less inclined to combine work and family than later cohorts (age 25 to 34 in 1997). As well, young men and women are new to the labour market and have not yet experienced the effects of career interruptions.

The SLID measure of experience, although a welcome addition to the study of pay differentials, is far from perfect. Information is missing on the *continuity* of work experience, the *duration* of labour force withdrawals, and the *frequency* and *timing* of withdrawal. These factors may influence the pay women receive in several ways (Corcoran and Duncan, 1979).

First, men and women differ considerably in the amount of time they work and in the continuity of their work experience. Women are more likely to combine periods of

paid work with periods of labour force withdrawal for family-related reasons. This affects job tenure—a factor that influences wages.

Second, human capital skills may depreciate during long periods of labour force withdrawal. Women returning to the same employer after an interruption in employment may be less likely to be promoted. Or, women not returning to the same employer may have to accept lower wages than they received prior to their withdrawal.

Third, women expecting several withdrawals from the labour force may postpone training, or may decide to accept low-wage jobs in industries or occupations that are easy to enter and exit.

Fourth, the timing of labour force withdrawals may affect wages. Job-related skills are usually acquired at the start of careers—which generally coincides with decisions regarding children. A significant portion of real lifetime earnings growth has been found to occur during the first years after

graduation (Murphy and Welch, 1990). If so, the timing of labour force withdrawals may have important long-term implications for future earnings patterns.

Using definitions of full year, full time to calculate FYFTE work experience may be problematic. *Full year* refers to working at least six months in a calendar year and *full time* refers to working at least 30 hours per week. As noted earlier, among full-time workers, the number of hours usually worked per week varies considerably. For example, Person A works 45 hours per week for 12 months, while Person B works 32 hours per week for 7 months. Under the SLID measure of FYFTE, each person would have one year of FYFTE experience despite the significant variation in work hours. As well, the measure of FYFTE work experience does not account for short-term (less than six months) labour force withdrawals in a given year. Almost 40% of working women take less than six months off work after giving birth (Marshall, 1999). If these unrecorded work interruptions and hours of work become more important as experience increases, then the measure of FYFTE work experience may become less accurate in reflecting the relative amount of work done by men and women.

The unadjusted wage gap is small for workers with less than two years of experience (4%) but grows larger as years of work experience increase.<sup>2</sup> A study of recent post-secondary graduates from the National Graduates Survey found that the gender pay gap was relatively small two years after graduation (7%) but widened two

**Table 3: Actual versus potential work experience**

Age	Men			Women			Female/ Male
	Potential	Actual	Ratio	Potential	Actual	Ratio	Actual experience
	Years	%		Years	%		%
18 to 64	19.5	18.3	93.8	19.1	14.4	75.4	78.7
18 to 24	3.4	2.9	85.3	2.8	2.4	85.7	82.8
25 to 34	10.0	9.2	92.0	9.4	7.9	84.0	85.9
35 to 44	19.4	18.2	93.8	19.6	15.6	79.6	85.7
45 to 54	29.6	27.9	94.3	29.2	21.5	73.6	77.1
55 to 64	40.2	37.1	92.3	40.2	23.8	59.2	64.2

Source: Survey of Labour and Income Dynamics, 1997

Note: Ratio refers to the proportion of potential work experience spent working full year, full time.

to five years after graduation (16%) (Finnie and Wannell, 1999): "These findings have interesting implications for the longer-term earnings profiles of graduates as they suggest that longer run (permanent) reductions in the earnings gap amongst cohorts of graduates might not be nearly as great as immediate post-graduation records suggest."

## Education and major field of study

Canadian women have increased their educational attainment, matching and at some levels surpassing men. The importance of human capital characteristics—notably education—in the wage determination process has been firmly established in the economics literature. SLID contains information on educational attainment as well as major field of study. Not surprisingly, many fields of study are dominated by one of the sexes. For instance, graduates of engineering, applied sciences, technologies, and trades fields are mostly men. On the other hand, women are overrepresented among graduates with a commerce or business administration degree, and in the health and education fields. Since wages differ by major field of study, the choices made by men and women may account for some of the pay gap.

## Explaining the gap

In describing the causes of labour market differentials, economists look first at the attributes different workers bring to the workplace. There is no universally accepted set of conditioning variables that should be included. However, the consensus is that controls for productivity-related factors such as education (level and major field of study), experience, experience squared, job tenure, marital status, presence of children, part-time status, union status, firm size, region, and urban size should be included. It is debatable whether occupation and industry should be included. If employers differentiate between men and women through their tendency to hire into certain occupations, then occupational assignment is an outcome of employer practices rather than an outcome of individual choice (Altonji and Blank, 1999). Analyses that omit occupation and industry may overlook the importance of background and choice-based characteristics on wage outcomes, while analyses that fully control for these variables may undervalue the significance of labour market constraints on wage outcomes. (see *Accounting for male-female pay differences*).

Using actual rather than potential experience allows *more* of the wage gap to be explained (Table 4). The explained component is about 9.2% to 37.4% in the conventional model (using potential work experience) and 29.2% to 49.3% in the augmented model (using actual work experience). This finding is novel for Canada but similar to findings in other countries (for example, Wright and Ermisch, 1991, for the United Kingdom; O'Neill and Polachek, 1993, for the United States).

The portion of the wage gap attributable to differences in work experience between men and women is severely underestimated when potential instead of actual labour market experience is used. Differences in actual work experience account for at most 12% of the gap, while potential work experience explains less than 1%. This may be explained as follows: First, as stated earlier, men and women differ little in the mean characteristics of potential experience but they differ

**Table 4: Accounting for male-female differences in hourly earnings**

	Fraction of the gap explained by...			
	Conventional		Augmented	
	A*	B**	A*	B**
	%			
Mincer proxy	0.5	0.6		
Education level	-4.9	-3.3		
Actual experience			11.9	10.8
Education level/major field of study			5.4	4.1
Job tenure	3.3	2.6	2.7	2.2
Part-time status	8.4	2.9	6.8	2.2
Union status	0.5	0.8	0.5	0.8
Firm size	1.0	0.8	1.1	0.8
Marital status	1.0	0.9	1.1	1.0
Age of youngest child	0.0	0.3	0.4	0.5
Region	-0.3	-0.2	-0.3	-0.2
Urban size	-0.3	-0.4	-0.4	-0.5
Occupation		9.2		6.8
Job responsibilities		6.2		5.7
Industry		17.0		15.1
Explained	9.2	37.4	29.2	49.3
Unexplained	90.8	62.6	70.8	50.7

Source: Survey of Labour and Income Dynamics, 1997

\* Ignoring industry and occupation.

\*\* Controlling for industry and occupation.



significantly in actual FYFTE work experience.<sup>3</sup> Second, although potential and actual work experience are highly correlated, an additional year of FYFTE experience gives greater returns than a year of potential work experience. So, when FYFTE experience is used, both the difference in means and the difference in returns produce a greater explained component than when potential experience is used.

Differences in men's and women's educational attainment reduce the explained component by at most 5%, while differences in the major field of study by educational attainment account for no more than 5% of the wage gap. The contribution of each major field of study to the wage gap varies considerably. About 15%<sup>4</sup> can be explained because men are more likely to graduate from engineering and applied sciences programs, and degrees in these programs yield high returns. However, the prevalence of women graduating from health science and education programs—occupations associated with high earnings—reduces the explained component by 5% to 9%.

Despite the long list of productivity-related factors used in this study, a substantial portion of the wage gap cannot be explained. The same results were found in other notable Canadian studies (Baker et al., 1995; Gunderson, 1998; Christofides and Swidinsky, 1994). Such large, unexplained differences may be related to productivity-related factors, labour market decisions, or skill measures that are not captured by SLID.

### The choice of non-discriminatory wage structure matters

Questions related to pay differentials are often framed in a manner that examines the extent to which women are paid the same as comparable men. For this reason, the male wage structure is often considered the 'competitive' or the 'non-discriminatory' wage structure. Alternative competitive wage structures may be employed. If the female pay structure is used, the question would be: What is the hypothetical wage men would receive if they were paid according to the female wage structure? Other approaches hint that the competitive norm falls somewhere between the male and female wage structure. One suggestion is that the competitive wage structure should be more similar to the structure for the larger group (Cotton, 1988). That is, the returns are estimated as the weighted average of the male and female coefficients, where the weights are simply the proportion of the total population that

are men and women. Another suggestion is that the least squares estimates from a combined or *pooled* model be used as the estimate of the competitive wage structure (Neumark, 1988).

When the male wage structure is adopted as the competitive standard, 51% of pay differentials result from differences in the returns to wage-determining characteristics, while 49% result from differences in the endowments of wage-determining characteristics. When the female wage structure is adopted, male-female differences in characteristics explain 6%, while differences in the returns to wage-determining characteristics account for 94% of the pay differential.

By construction, the weighted average method yields decomposition techniques that are bounded by those obtained from the separate wage structures of men and women. This method yields an explained component of 30% and an unexplained component of 70%. Finally, the pooled method attributes a smaller proportion (39%) of the wage differential to differences in the returns to wage-determining characteristics, and a larger proportion to gender differences in characteristics, than the other three competitive wage structures.

These results suggest that adopting alternative comparative pay structures can lead to quite different interpretations of the components of male-female pay differentials.

### The pay gap differs within the wage distribution

A major drawback in the preceding methodology is that it considers only the information of the *average* pay differential, and it assumes that the size of the wage gap and its components are constant along the whole wage distribution.

In relation to the absolute predicted wage gap based on the attributes of the typical worker, about 47% of the difference in pay at the 90<sup>th</sup> percentile compared with 57% at the 25<sup>th</sup> percentile was explained by male-female differences in observable characteristics. This suggests that the 50% of the wage gap due to men and women possessing different wage-determining characteristics *at the mean* fails to accurately represent the differences encountered *along* the wage distribution. As well, the contribution of relevant factors in explaining pay differentials varies throughout the wage distribution. Work experience, job responsibilities and industry contribute more to understanding pay differentials at the upper end of the distribution relative to the

lower end, while occupation, union status and part-time status explain more at the lower end of the distribution relative to the upper end.<sup>5</sup>

### Other factors may contribute

The regression models used in the decomposition analysis account for no more than half of the variation in the hourly wages of men and women. The fit of the model to the SLID data can be improved by including other variables deemed to influence wages. The data typically used come from household surveys. Researchers have been unable to document the potential effect of firm characteristics—other than industry and firm size—on the wages of men and women. The new Workplace and Employee Survey will allow researchers to move beyond the individual worker to consider the importance of the workplace. But as noted earlier, pay differentials can be explained only if the factor in question influences wages *and* differences exist in the distribution of the factor among men and women.

People differ in their preference for particular types of work (that is, paid work or self-employment, hours, location, responsibilities). Differences between men and women in the labour market may reflect genuine differences in preferences, pre-labour market experiences, expectations, or opportunities. It is therefore difficult to distinguish between choice-based decisions and differential treatment based on sex. For example, pre-market experiences—which are related to expectations based on sex, both at home and in the education system—may influence the level of educational attainment and the choice of major field of study, labour force participation, job selection, and work habits.

Much of the literature has emphasized the importance of imperfect information about worker attributes. Employers are constantly making decisions regarding hiring and promotion and may use sex to predict future work commitment. Some firms may hesitate to hire women because women have, on average, more career interruptions and more absences for family reasons than men. Consequently, statistical discrimination may result (Arrow, 1973). This would be especially true in firms with substantial hiring or training costs, or where wages are higher. Insofar as employer behaviour changes as a result of women's increased

participation in the labour force, women's access to high-paying jobs will improve due to decreases in statistical discrimination.

### Summary

While earnings differences between men and women have narrowed since the 1970s, they continue to be remarkably persistent. Measurement and methodological issues play important roles in studying these differences.

Estimates of the pay ratio are sensitive to the measurements used. Conceptual differences in data sources and earnings measures that do not fully account for differences in work volume lead to different estimates of the ratio. The portion of the wage gap attributable to differences in work experience between men and women is severely underestimated when proxies for experience are used instead of actual labour market experience. Education level plays little role in explaining wage differentials, but choice of major field of study furthers our understanding of the issue.

Conclusions are often sensitive to the methodology chosen by the researcher. Questions are often framed in a manner that examines the extent to which women are paid the same as comparable men. Most studies use the male pay structure to make comparisons. However, alternative pay structures can be employed, with estimates of the unexplained portion of the differential ranging from 39% to 94%.

One drawback is that only the average difference is considered. When the size of the wage gap and its components along the whole wage distribution are examined, a different story emerges.

### Perspectives

#### ■ Notes

- 1 In terms of mean-log wages, the female-male hourly wage differential is 0.220.
- 2 The female-male hourly wage ratios are 0.96 for 0 to 2 years of actual FYFTE work experience, 0.87 for 3 to 5 years, 0.85 for 6 to 9 years, 0.82 for 10 to 19 and 20 to 29 years, and 0.80 for 30 or more years.
- 3 Men have 0.4 years more potential and 3.9 years more actual years of work experience than women.



4 The contribution of each major field of study to the female-male wage gap is calculated using results from the augmented model including detailed occupation and industry.

5 Work experience, job responsibilities and industry explain 14%, 13% and 29% of pay differences between men and women at the 90<sup>th</sup> percentile compared with 12%, 4% and 15% at the 25<sup>th</sup> percentile. Occupation, union status, and part-time status contribute 6%, 5% and 7% to pay differentials at the 25<sup>th</sup> percentile compared with the 90<sup>th</sup> percentile, where these factors tend to reduce the explained component by -15%, -3% and -4% respectively. The experiment is best framed using the characteristics of the typical worker around the percentile since the characteristics of workers at the upper end of the distribution differ from those of the average worker or workers at the lower end of the wage distribution.

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## Appendix: Accounting for male-female pay differences

The wage structures of men and women were examined by estimating the relationship between hourly wage rates and observed characteristics in semi-logarithmic form:

$$\ln w_i = X_i \beta + u_i \quad i = m, f \quad (1)$$

where the natural logarithm of wages is used as the dependent variable,  $X_i$  is a vector of worker and employer characteristics,  $\beta$  is a vector of coefficients measuring the returns to those characteristics, and  $u$  is the error term. Each coefficient is the percentage change in hourly wage rates associated with a one-unit change in the explanatory variable.

From the estimated regressions, the difference in the mean log wages between men and women is decomposed into three terms (Table A1):

$$\overline{\ln w_m} - \overline{\ln w_f} = (\bar{X}_m - \bar{X}_f) \beta^* + \bar{X}_m (\beta_m - \beta^*) + \bar{X}_f (\beta^* - \beta_f) \quad (2)$$

where  $\beta^*$  is the choice of comparative wage structure. The choice of comparative wage structure is examined in the section *The choice of non-discriminatory wage structure matters*. The first term represents the explained portion, which includes male-female differences in worker characteristics  $\bar{X}_m - \bar{X}_f$  evaluated at the competitive wage structure  $\beta^*$ . The residual or unexplained component is the proportion of the gap due to differences in the returns to

wage-determining characteristics and consists of a male advantage (second term) and a female disadvantage (third term). This decomposition is made possible by the ordinary least squares (OLS) property that the sample average wage,  $\bar{w}$ , is equal to the product of the average vector of characteristics  $\bar{X}$  and the estimated regression coefficients  $\hat{\beta}$ .

Previous work has shown that men and women differ in ways that may affect their productivity, but these differences do not necessarily explain the pay gap. It can only be explained if the differences in the factors in question are themselves important determinants of the pay received. The wage gap between men and women may be the result of either differences in their productivity-related characteristics or differences in the compensations they receive for the same productivity-related characteristics.

Quantile regression methods reveal dispersions in the wage differential that cannot be captured by OLS models. The properties of the OLS model used above (Equation 1) ensure that the average wage,  $\bar{w}$ , is equal to the sample average characteristics  $\bar{X}$  evaluated at the estimated regression coefficients  $\hat{\beta}$ . However, the quantile regression model does not have a comparable property and as a result, no exact decomposition is possible. The difference in the log wage between men and women can be formulated (following the notation of Mueller, 1998) as:

$$\ln w_m^q - \ln w_f^q = \beta_m^q (\bar{X}_m - \bar{X}_f) + \bar{X}_f (\beta_m^q - \beta_f^q) \quad (3)$$

where  $\ln w_i^q$  is the natural logarithm of hourly wages for sex  $i$  evaluated at quantile  $q$ ,  $\beta_i^q$  is a vector of estimated coefficients for sex  $i$  evaluated at quantile  $q$ ,  $\bar{X}_i$  is a vector of average characteristics of worker  $i$  ( $i = m, f$  denotes male and female respectively and  $q = 0.10, 0.25, 0.50, 0.75$  and  $0.90$ ).

Two sets of predicted values can be calculated from the coefficients of the quantile regression model of the log hourly wages. The first is conditioned on a vector of characteristics of men and women around the percentile, while the second is conditioned on the vector of average characteristics of all men and women (Table A2). To calculate the predicted wages of men and women at the 25<sup>th</sup> percentile, the first set of conditioning variables includes the characteristics of individuals falling within the 20<sup>th</sup> – 30<sup>th</sup> percentile. The second set of conditioning variables used to calculate the predicted wages is simply the average characteristics of all men and women respectively.

For each percentile, both the actual and predicted wages are always greater for men than for women. The predicted wage gap can deviate from the actual wage gap. For instance, the actual wage gap at the 10<sup>th</sup> percentile is about

**Table A1: Decomposition of male-female wage differences**

Structure	$\beta^*$ value (Equation 2)	Log wage differential = 0.220	
		Explained <sup>†</sup>	Unexplained <sup>††</sup>
Male	$\beta_m$	0.108 49.3%	0.112 50.7%
Female	$\beta_f$	0.013 5.9%	0.206 93.6%
Weighted	$\beta_m p_m + \beta_f p_f$	0.067 30.5%	0.153 69.5%
Pooled	$\tilde{\beta}$	0.135 61.1%	0.086 39.1%

Source: Survey of Labour and Income Dynamics, 1997.

<sup>†</sup> Due to differences in wage-determining characteristics.

<sup>††</sup> Due to differences in returns to wage-determining characteristics.



## Appendix: Accounting for male-female pay differences (concluded)

23%. But the predicted wage gap is 18% when the characteristics of the *typical* worker are used, and 19% when the average characteristics are used. Using the characteristics of the *average* worker, the predicted wage gap

increases along the wage distribution. However, a similar conclusion cannot be reached when the predicted gap is based on the characteristics of a typical worker in the percentile or when the actual wage gap is computed.

**Table A2: Wage ratios and decomposition across the wage distribution**

	Log wage gaps			Decomposition <sup>†</sup> of	
	Actual	Predicted-1* $= \beta_m^q X_m^q - \beta_f^q X_f^q$	Predicted-2** $= \beta_m^q \bar{X}_m - \beta_f^q \bar{X}_f$	Quantile log explained-1	Wage gap explained-2
					%
10 <sup>th</sup> percentile	0.230	0.182	0.192	51.8	55.6
25 <sup>th</sup> percentile	0.237	0.237	0.210	57.3	55.0
Median	0.226	0.193	0.231	46.0	46.4
75 <sup>th</sup> percentile	0.215	0.209	0.238	54.1	49.8
90 <sup>th</sup> percentile	0.209	0.214	0.258	47.0	40.6

Source: Survey of Labour and Income Dynamics, 1997

\* The log wage gap is calculated using the coefficients of the quantile regression model of log hourly wages conditioned on a vector of characteristics of the typical worker falling between +/- 5 of the selected percentile.

\*\* The log wage gap is calculated using the coefficients of the quantile regression model of log hourly wages conditioned on a vector of the mean characteristics of workers.

† The characteristics of the typical worker falling between +/- 5 of the selected percentile is used in the calculation of explained-1 while the characteristics of the average worker are used in the calculation of explained-2.

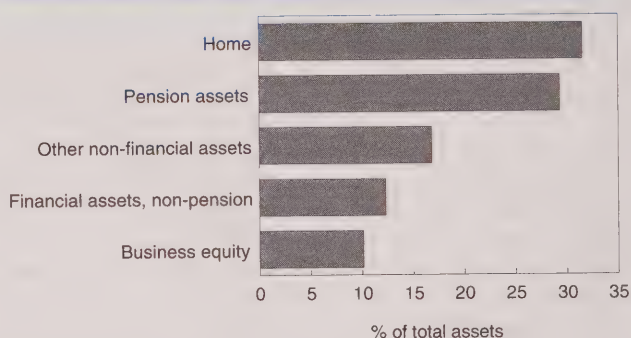
# Private pension savings, 1999

Karen Maser and Thomas Dufour

As defined by the Survey of Financial Security, private pension assets include individual savings in registered retirement savings plans (RRSPs) and registered retirement income funds (RRIFs), the value of pension plan benefits 'earned' through participation in an employer pension plan (EPP), and other pension savings held in vehicles such as annuities and deferred profit-sharing plans. Together, they are referred to as *private* pension savings to indicate that they do not include the value of the income to be received from the Old Age Security/Guaranteed Income Supplement (OAS/GIS) program, and the Canada and Quebec Pension Plans (C/QPP).

Private pension assets are a major component of the assets of Canadian families, accounting for close to 29% of the value of all assets. Despite the size and importance of these assets, they are still second to the most valuable asset: the home. It too must be

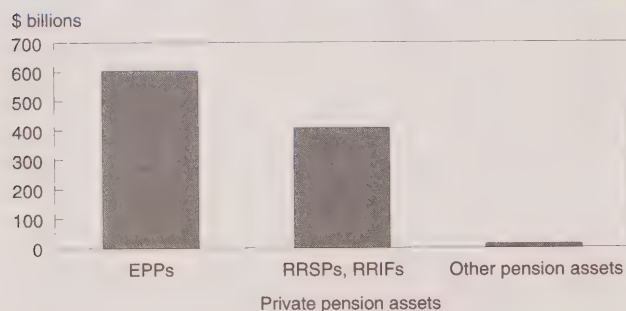
**Chart A: Private pension savings and homes are the major assets of most Canadians.**



Source: Survey of Financial Security

considered in any discussion of readiness for retirement, since it can also serve a very important role in providing for a more financially secure future.

**Chart B: Employer pension plans account for the largest amount of private pension assets.**



Source: Survey of Financial Security

The total estimated value of private pension assets is just over \$1 trillion. This money will be essential in providing a large part of the income of seniors. It also, however, plays a very important role in the current financial markets as one of the largest pools of investment capital in the country.

The value of the benefits to be paid from employer pension plans (\$604 billion) is well over half the total amount in private pension savings. This is considerably more than the amount saved in RRSPs and RRIFs (\$408 billion). Close to 60% of family units have RRSPs or RRIFs, with a median value of \$20,000. Although fewer family units have EPP assets (47%), their median value is much larger (\$49,300). The value of employer pension plan benefits includes that of current plan members as well as those receiving this income.

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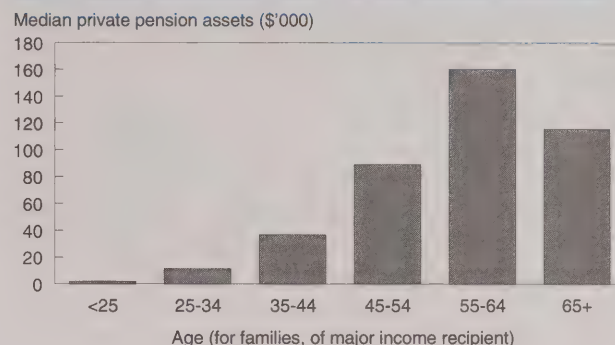


The amount held by family units as private pension assets increased significantly with the age of the individual or, in the case of families, the person with the highest pre-tax income. Pension assets peaked for family units with a major income recipient between 55 and 64 years of age. These family units, who would have been approaching retirement or just recently retired, had median pension assets of \$160,300. It is not surprising that these families led the way in terms of pension holdings, given that the value of employer pension plan benefits increases with the number of years of membership in the plan. As well, these people had a longer period in which to accumulate RRSP assets.

Senior family units (those in which the person with the highest pre-tax income was 65 years and older) also had significant private pension assets, second only to those with a major income recipient aged 55 to 64. Median pension assets for these family units was about \$115,700. Most of the major income recipients in these families were retired and would already have been drawing on these assets, reducing the amount from a pre-retirement peak.

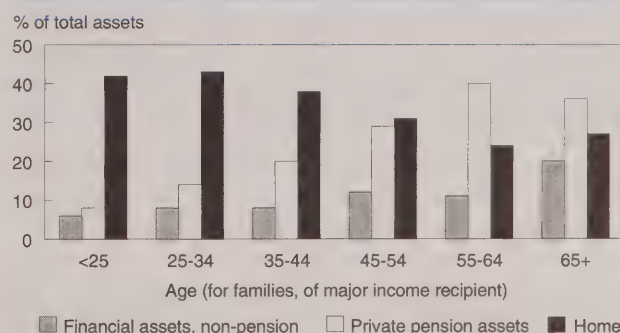
As the age of the major income recipient increased, private pension assets became a much larger proportion of total assets. For family units with a major income recipient aged 55 to 64, pension assets were by far the most significant component of total assets (40%). On the other hand, pension assets represented only about 20% of the assets of family units with a major income recipient between 35 and 44; for these families the home was the most valuable asset (38% of total assets). Financial assets held outside private pension plans were a more important asset for the older age groups—for those family units with a major income recipient 65 years and older, these assets accounted for 20% of the total. These assets are important since they generate income for this age group.

**Chart C: Median private pension assets are greatest for those 55 to 64.**



Source: Survey of Financial Security

**Chart D: Private pensions are the largest asset for those 55 and over.**



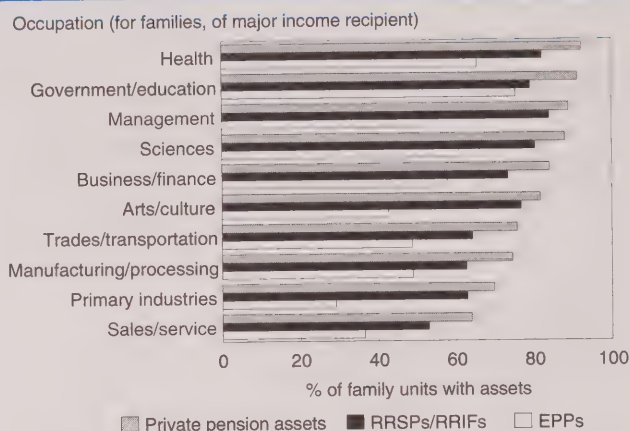
Source: Survey of Financial Security

Families with a major income recipient employed in the public sector (with the government or in education) were not only among the most likely to have private pension assets (91%), they also had the highest median pension value (\$84,400). Almost all public-sector employers offer an employer pension plan.

Family units with a major income recipient whose occupation was classified as "management" also had relatively large private pension assets; the median value was \$74,300. In addition, this group had the highest median RRSP/RRIF holdings (\$35,000). This is likely because they had the highest median after-tax family income (\$56,100) and therefore were in a better position to save.

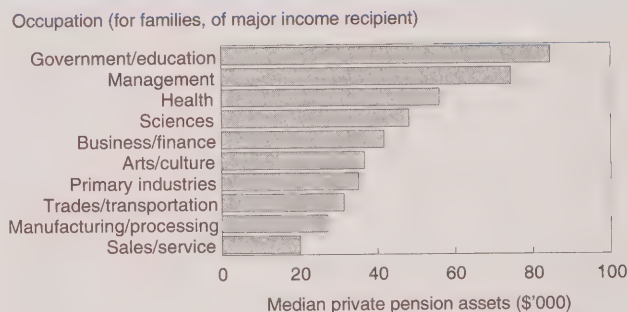
Those employed in certain occupations in the private sector were not only less likely to have pension assets, they also had assets with a lower median value. Some of these occupations account for a large proportion of the labour force. For example, 13% of individuals or major income recipients were employed in sales and service. A much lower proportion of the family units in this occupation had pension assets (64%), and the median value of those assets (\$20,000) was lower than for any other occupation. Family units with a major income recipient also had the lowest median after-tax family income, providing them with less opportunity to contribute to RRSPs.

**Chart E: Government, education and health employees are the most likely to have private pension assets.**



Source: Survey of Financial Security

**Chart F: Those employed in government and education have the highest median private pension assets.**



Source: Survey of Financial Security

## Data source

The 1999 Survey of Financial Security, which covered about 16,000 responding households, collected information from May to July 1999 on the assets and debts of families and unattached individuals. It captured the value of all major financial and non-financial assets, as well as money owing on mortgages, vehicles, credit cards, student loans and other debts. The survey was developed with the support of Human Resources Development Canada, Canada Mortgage and Housing Corporation, Industry Canada and the Policy Research Initiative.

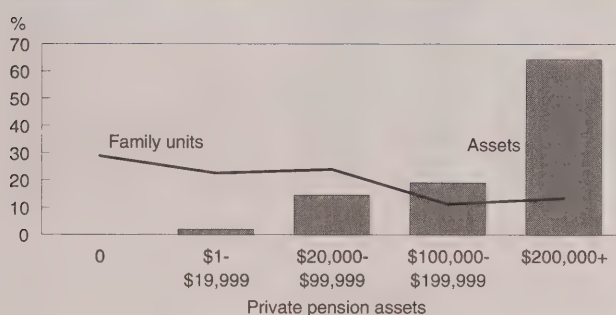
This note analyzes Canadians' retirement savings. It makes a number of assumptions such as the age of retirement, income required, assets available to generate that income, and the expected earnings on those assets. These assumptions and the methodology used are described in more detail in *Survey of Financial Security: Methodology for estimating employer pension plans benefits* (Catalogue no. 13F0026MIE), free on Statistics Canada's Web site ([www.statcan.ca](http://www.statcan.ca)).



Families with both employer pension plan assets and RRSP/RRIF assets had significantly higher pension assets than those holding only one or the other. The 36% of families with both types had a median pension value of \$102,900, compared with \$33,300 for those with only EPP assets and \$15,000 for those with only RRSP/RRIF assets. Interestingly, people who belong to EPPs tend to contribute more to their RRSP than those who do not. This is largely related to income. Half of the family units with EPP and RRSP assets had after-tax family incomes of \$40,000 or more, compared with 17% of those family units that had only EPP assets.

Significantly more family units had only RRSP assets than had only EPP assets (24% compared with 11%). This is largely because RRSPs are more widely available. Any person with earned income (largely employment income) could have contributed to an RRSP, while only those working for an employer that provided a pension plan would have EPP assets.

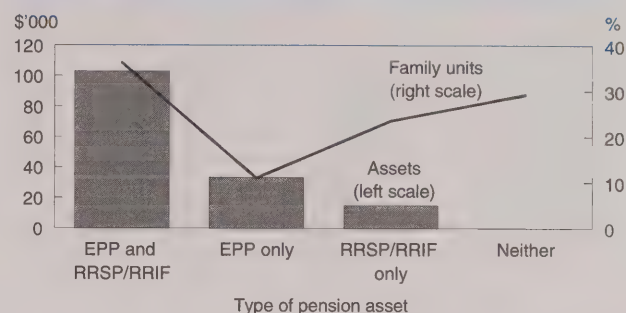
**Chart H: About 25% of family units had 84% of private pension assets.**



Source: Survey of Financial Security

Private pension assets were concentrated in a relatively small percentage of family units. The 25% of family units with \$100,000 or more in private pension savings held 84% of these assets. About half of these (13%) had at least \$200,000 in pension assets—this

**Chart G: Largest median private pension assets held by family units with both EPPs and RRSPs/RRIFs.**



Source: Survey of Financial Security

Family units holding only EPP assets had much higher median pension assets than those with only RRSP/RRIF assets. Again, this is because EPPs require that regular contributions be made, while RRSPs do not.

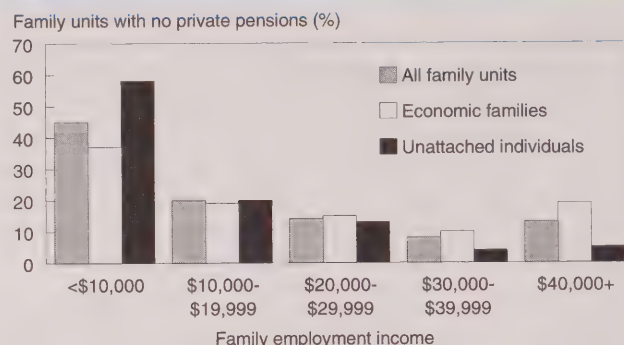
group alone held close to two thirds (64%) of the total. However, almost 29% of all family units did not have any private pension assets in 1999.

Close to half (49%) of the family units in which the major income recipient was between 55 and 64 had at least \$100,000 in private pension assets. This age group also had the lowest percentage of family units with no pension assets (21%). A much smaller percentage (36%) of family units in which the major income recipient was likely to be retired (being 65 or older) had pension assets of \$100,000 or more. Many of these family units would already have been drawing on their pension assets, thereby reducing the amount held.

Notably, 34% of the family units with a major income recipient 65 or older had no pension assets. These families may not necessarily be less well off than in pre-retirement years since their income from government programs (OAS/GIS and C/QPP) may be sufficient to maintain their former standard of living.

The large majority of family units with no private pension assets had lower employment incomes. Considering only those economic family units with a major income recipient between 25 and 64, just over 70% of families of two or more with no pension savings had earnings of less than \$30,000. Approximately 78% of unattached individuals had earnings of under \$20,000. Even though these families and individuals have little saved privately, public plans such as OAS/GIS and C/QPP will provide them with a minimum income in retirement. This income would replace a substantial portion of their pre-retirement earnings. Using 1998 rates, a single person with no other income would receive from OAS/GIS an annual income of just under \$11,000 at 65; a couple, both 65, would get about \$17,800.

**Chart I: Most family units aged 25 to 64 with no private pension assets had earnings of less than \$30,000.**

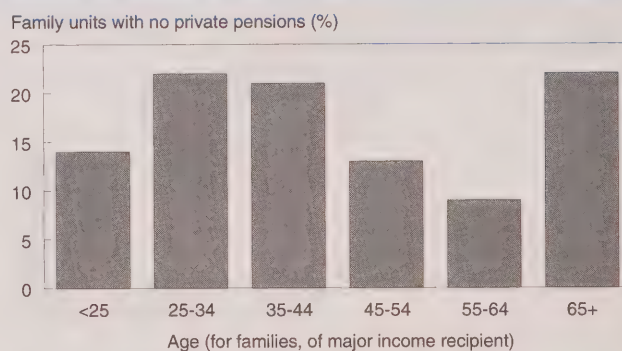


Source: Survey of Financial Security

Most of those with no private pension assets were relatively young. This puts them further from retirement and means they still have a number of years in which to accumulate assets. More than half (57%) of families with no private pension assets had a major income recipient under age 45.

However, the remaining 43% of family units (1.5 million in total) without private pension assets had a major income recipient 45 or older. For these family units, the government-sponsored programs (OAS/GIS and C/QPP) will, or do now, constitute an essential source of income in retirement.

**Chart J: The majority of family units with no private pension assets were under 45.**



Source: Survey of Financial Security



How much income does a family require in retirement? Because certain work-related expenses (for example, contributions to C/QPP, Employment Insurance, and employer pension plans) cease at retirement, it is not necessary to have the same gross income after retirement in order to receive the same net income. Also, because expenditures for consumer goods often decrease while mortgage payments and child-rearing costs are eliminated or reduced, a similar standard of living after retirement is possible with less net income than was earned through employment.

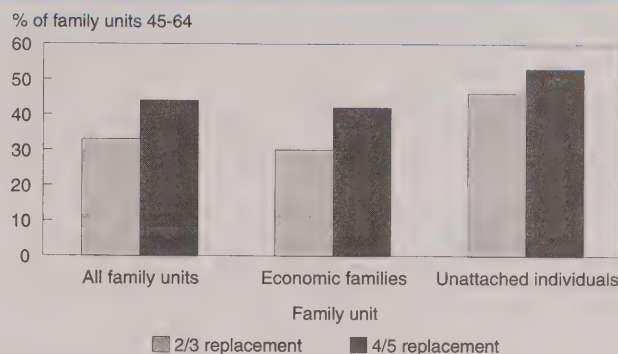
An estimated 33% of family units with a major income recipient aged 45 to 64 may not, given their current asset situation, have saved enough to replace two-thirds of their earnings, or to generate an income in retirement that is likely to be above the low income cutoff (LICO). This increases to 44% if four-fifths of the pre-retirement earnings is to be replaced. The proportion is much higher for unattached individuals because of the number that may not be able to generate an income above the LICO.

The amount of income that a family must replace from private sources increases with their pre-retirement earnings. It is therefore not surprising that the percentage of family units with high employment incomes (of \$75,000 or more) that might not be able to replace two-thirds of their earnings is relatively high, at 41%. Family units earning at least \$75,000 represent over one-third of all family units that might not have saved enough; their median net worth was \$235,300. By comparison, those with earnings of \$75,000 or more that appear to have sufficient savings had a median net worth of \$628,400.

A lower proportion (just under one-quarter) of those with employment incomes of between \$20,000 and \$40,000 may not be able to replace two-thirds of their earnings. The income this group will receive from public pension programs (OAS/GIS and C/QPP) will help most of them to maintain a similar standard of living in retirement.

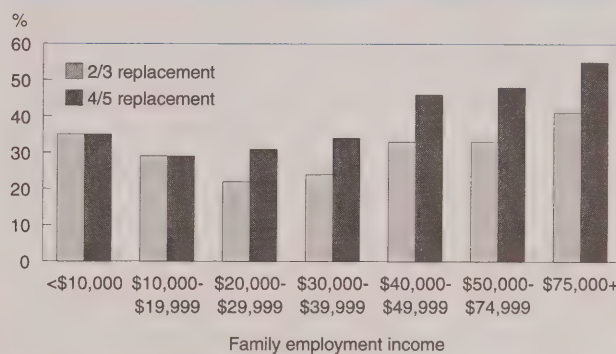
Just over 35% of those with employment incomes under \$10,000 may not have saved enough to generate an income in retirement above the low income cutoff. For many in this group, the result may not be a drop in standard of living but a continuation of one that is restricted.

**Chart K: One-third of family units aged 45 to 64 may not have sufficient retirement savings.**



Source: Survey of Financial Security

**Chart L: Family units with lower and higher employment incomes are the least likely to have saved enough.**

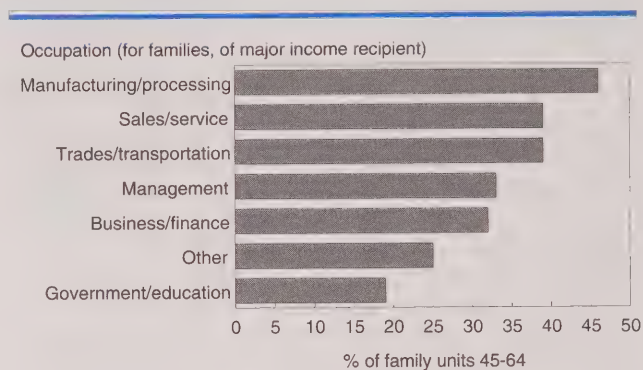


Source: Survey of Financial Security

Family units with a major income recipient employed in the public sector—with some level of government or in an education-related occupation—were most likely to have saved enough for retirement. A relatively small 19% of this group did not appear to have sufficient assets. This group also had the largest proportion of family units with both employer pension plan assets and RRSPs (63%). Only 9% had no savings in either of these private pension programs.

The family units that may have the most difficulty replacing two-thirds of their earnings in retirement have major income recipients working in occupations associated with processing and manufacturing (46%). About 26% did not have any assets in employer pension plans or RRSPs.

**Chart M: Those working in manufacturing and processing are more likely to have difficulty replacing at least two-thirds of their earnings in retirement.**

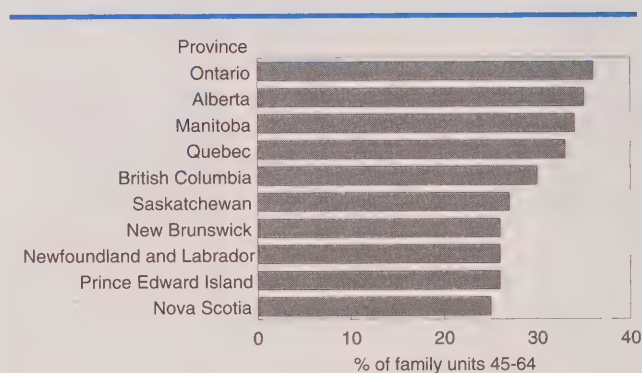


Source: Survey of Financial Security

Alberta and Ontario had the largest proportion of family units aged 45 to 64 that may not have saved enough to replace two-thirds of their earnings in retirement (just over 35%). This is true even though the median net worth of all family units 45 to 64 in Alberta and Ontario was higher than in any other province except British Columbia (\$255,000 in Alberta and \$267,000 in Ontario). However, median employment income for this same population was also among the highest in these provinces and, as was seen earlier, the proportion who may have difficulty replacing their earnings when they retire rises with income.

The Atlantic provinces and Saskatchewan had lower proportions of family units that may not have saved enough. For the most part these provinces have lower median employment income; income from OAS/GIS and the C/QPP will help many family units in these provinces to maintain their standard of living when they retire.

**Chart N: The proportion of family units aged 45 to 64 that may not be able to replace at least two-thirds of their earnings in retirement is highest in Alberta and Ontario.**



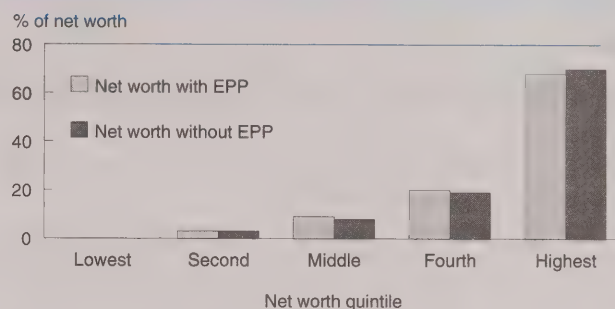
Source: Survey of Financial Security



The net worth of Canadians, excluding the value of employer pension plan benefits, is about \$81,000. Including EPP benefits increases net worth by almost 35% to approximately \$109,200. This indicates the importance of considering these retirement savings when examining the financial situation of Canadians. Although EPP benefits are not savings that can be withdrawn and used for other purposes prior to retirement, they nevertheless constitute an essential part of the financial picture of Canadians.

Including the value of employer pension plan benefits in the net worth of Canadians changed the distribution of net worth only very slightly. Because a relatively large proportion of Canadians belong to employer pension plans (47% of family units had at least one member who belonged to an EPP), it might be expected that adding the value of the EPP benefit would result in a more even distribution of net worth. However, using the estimate of net worth including the value of EPP benefits, the wealthiest 20% of family units continued to hold the largest percentage of

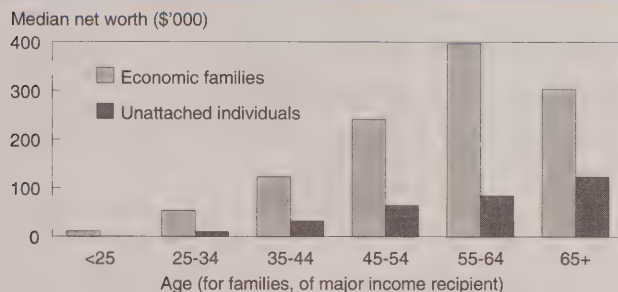
**Chart O: Including the value of employer pension plan benefits changed the distribution of the net worth of Canadians only slightly.**



Source: Survey of Financial Security

personal wealth: 68%. This is slightly less than the 70% excluding EPP. The proportion of the net worth held by the 40% of Canadians with the lowest personal wealth did not change.

**Chart P: Median net worth is highest for families with the major income recipient aged 55 to 64.**



Source: Survey of Financial Security

Families and individuals generally acquire their assets over their lifetime, so it is not surprising that net worth increases with age. Median net worth was highest for those families of two or more in which the major

income recipient was 55 to 64 years of age (\$397,000). It dropped for those 65 and over to \$302,800. This is to be expected since many elderly families may be required to use some of their assets to generate or supplement their income.

The net worth of unattached individuals was well below that of economic families for every age group. Although net worth increased with age for the unattached, the median net worth of all age groups under 65 was substantially lower than for those 65 and older. Many of the unattached 65 and older may have spent a large part of their lives as part of a family—their higher net worth may be a reflection of this.

Those under 25, who have had less time to accumulate savings and purchase assets, had the lowest median net worth. Unattached persons under 25 had a median net worth of \$1,000. Families in which the major income recipient was under 25 had a median net worth of \$11,400.

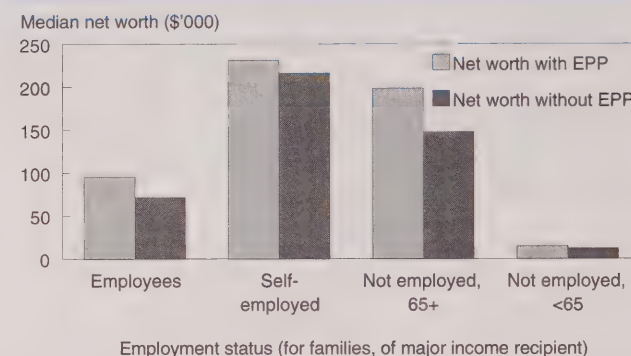
Adding the value of employer pension plan benefits to net worth increased the median net worth of employees by 33%, compared with 7% for the self-employed. Despite this, the median net worth of family units in which the major income recipient was self-employed was still almost two and a half times greater than for an employee (\$231,100 compared with \$95,200). This reflects the effect of business equity on the net worth of the self-employed; for that group business equity represented 31% of total assets, compared with 6% for employees.

The net worth of those not working and at least 65 years of age also increased substantially (to \$198,300) with the addition of the value of employer pension plan benefits. Many in that group were retired and collecting pensions from previous employment. The net worth of those not working and under 65 also increased 22% because of those receiving pensions or having employer pension plan assets from previous employment.

The highest level of education makes a significant difference to the financial situation of the family unit. It is one of the most important determinants of net worth, since it affects both income and occupation. Median net worth for family units in which the individual or major income recipient had not graduated from high school was \$79,600, compared with \$419,600 for those with a professional degree in law, medicine, dentistry, veterinary medicine or optometry.

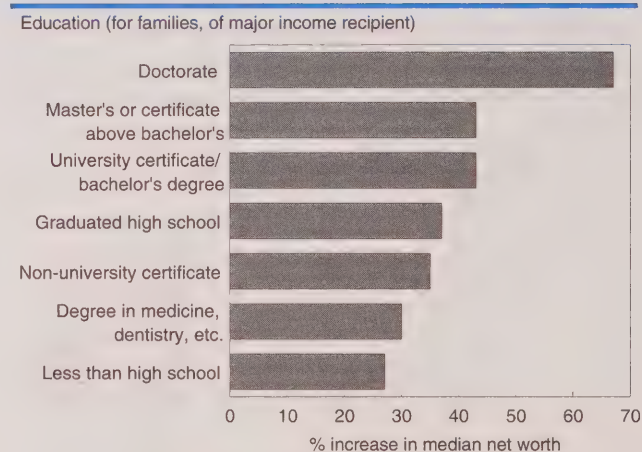
Adding the value of employer pension plan benefits to net worth had the largest effect on those with doctorates. This group had the largest percentage of family units with EPP assets (71%). Although those with a professional degree in law, medicine, dentistry, veterinary medicine or optometry had the highest median net worth, they were less affected by the addition of the value of EPP benefits since a much smaller percentage of family units in that group belonged to EPPs (37%). Many are self-employed and would therefore not be eligible to participate in an EPP. This group would depend more heavily on RRSPs.

**Chart Q: Median net worth of the self-employed is higher than for employees.**



Source: Survey of Financial Security

**Chart R: Increase in net worth with addition of the value of EPP is greatest for those with doctorates.**



Source: Survey of Financial Security



# What's new?

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The *2001 Census Preview of Products and Services* offers a first look at the range of products and services available from the 2001 Censuses of Population and of Agriculture.

The *2001 Census Preview of Products and Services* (Catalogue no. 92-376-XIE/XPB, free) is now available on Statistics Canada's Web site ([www.statcan.ca](http://www.statcan.ca)). From *Our products and services*, choose *Free publications*, then *Population and demography*. For more information, contact the Statistics Canada regional reference centre nearest you.

The benefits of moving were strongest for those originally living in the Atlantic provinces, Quebec or the Prairies—all provinces where earnings were generally lower. For some people, earnings increased 50% or more on average in the year after the move. People who left Alberta and British Columbia, where economies were generally stronger, showed only small gains relative to those who stayed behind. In contrast, those who left Ontario, where jobs were generally well-paying, saw their earnings decline.

The study also analyzed pre- and post-move earnings profiles. Movers had earnings much like those of non-movers in their province of origin, and they quickly integrated into their new local labour market. These findings reinforce the notion that the move itself was responsible for the observed changes in earnings, not the characteristics of the movers.

Alberta led Canadian business sector productivity during the late 1990s, according to a recent study examining differences in labour productivity among the provinces. Alberta led all provinces with an average gross domestic product (GDP) per job of \$66,000; Ontario was second, \$10,000 behind. Saskatchewan, Quebec and British Columbia trailed Ontario by between \$2,000 and \$5,000 per job. Manitoba and Atlantic Canada posted average productivity that was only two-thirds that of Alberta. The study found that some of these differences were the result of differences

in industrial structure among provinces, and that some were due to real differences in labour productivity across sectors.

The Analytical Studies Branch research paper no. 180, *Differences in Interprovincial Productivity Levels* (Catalogue no. 11F0019MIE01180, free) is now available on Statistics Canada's Web site ([www.statcan.ca](http://www.statcan.ca)). From *Our products and services*, choose *Research papers (free)*, then *Social conditions*. A paper version (Catalogue no. 11F0019MPE, no. 180, \$5/\$25), can be ordered from Louise Laurin at (613) 951-4676. For more information, contact David Sabourin, Micro-economic Analysis Division, at (613) 951-3735.

### ■ *National Occupational Classification*

The manual *National Occupational Classification for Statistics 2001* (NOC-S) provides a systematic classification structure to identify and categorize the entire range of occupational activity in Canada.

This NOC-S, produced in partnership with Human Resources Development Canada, is Statistics Canada's official classification for collecting and disseminating occupational data. It replaces the Standard Occupational Classification 1991 as the official classification for occupations from the 2001 Census as well as other Statistics Canada surveys.

The 520 detailed occupations in the manual are identified and grouped primarily according to the work usually performed, as determined by the tasks, duties, and responsibilities of the occupation.

The NOC-S manual features more up-to-date detail for computer-related occupations, as the previous classification was developed before the advent of the Internet. It has a specific aggregation for computer and information systems professionals. This minor group has five detailed occupations, two of which are concerned with the Internet. In addition, there is a specific aggregation for technical occupations in computer and information systems with three detailed occupations. The NOC-S manual also has a greatly expanded list of example job titles.

The manual *National Occupational Classification for Statistics 2001* (Catalogue no. 12-583-XPE, \$99.95) is now available on Statistics Canada's Web site ([www.statcan.ca](http://www.statcan.ca)). From *Statistical methods*, choose *Standard classifications*, then *Occupation*. For more

information, contact Wayne Silver, Standards Division, at (613) 951-3443; fax: (613) 951-8578; [standards@statcan.ca](mailto:standards@statcan.ca).

### ■ *University enrolment*

Women consolidated their position as the majority of undergraduate students at universities in the 1999-2000 academic year. Among the age group 18 to 24, women accounted for 57% of all full-time undergraduate university students, up from 54% in 1992-93, the peak year for enrolment. They were the only group whose enrolment increased during this seven-year period.

In 1999-2000, an estimated 245,200 full-time undergraduates were women aged 18 to 24, up 10% from 1992-93. During this same period, however, their male counterparts declined 3% to 184,000.

Universities enrolled 719,900 undergraduate students, both full-time and part-time, in 1999-2000, up 2% from 1998-99 and the second consecutive annual increase. However, the 1999-2000 total was well short of the record 771,300 in 1992-93. Undergraduate enrolment declined for five consecutive years following this peak.

This five-year decline was due almost entirely to a sharp drop among part-time undergraduate students, especially in older age groups. Full-time enrolment remained steady over this same period.

Declining part-time enrolment was most notable among students 25 to 44. While part-time undergraduate studies have traditionally attracted more women than men, both saw substantial declines during the seven-year period. Part-time enrolment among men 25 to 44 declined 29% to 42,300 in 1999-2000. Enrolment among women in this age group fell 30% to 73,900.

Enrolment in full-time studies, undergraduate and graduate, rose at universities in five provinces from 1992-93 to 1999-2000. The largest increase occurred in British Columbia, where the number of full-time students climbed 19% to 54,200. Full-time registrations also advanced in Alberta, Saskatchewan, Manitoba and Ontario.

Enrolment in part-time undergraduate and graduate courses increased only in Alberta (45%) and British Columbia (18%) during the seven-year period.



Universities in the other eight provinces saw double-digit declines in part-time enrolment, ranging from 11% to 42%.

To obtain tables on enrolments, contact Shelley Crego at 1 800 307-3382 or (613) 951-0737. For more information, contact Mongi Mouelhi, Centre for Education Statistics, at (613) 951-1537.

### ■ *Postsecondary education and family income*

Young people from high-income families were more than twice as likely as those from low-income families to have participated in university education in 1998 or before, according to the Survey of Labour and Income Dynamics. Individuals aged 18 to 21 who came from low-income homes were less likely to ever have enrolled in any form of postsecondary institution by 1998. But the gap was particularly pronounced for university education.

The analysis examines the relationship between family income and participation in postsecondary education. The 18 to 21 year-old population was divided into four equal quartiles according to family income when they were aged 16. Among those from families in the highest quartile, about 40% in 1998 had attended university at some time in their life.

This rate of university attendance was about 2.5 times that of individuals in the same age group from the lowest income quartile (16%). In comparison, about 26% of young people from families whose income was in the middle two quartiles had attended university.

Among the families in the highest quartile, more than 70% of young people by 1998 had at some time in their life participated in some form of postsecondary education—university, college, or trade or vocational school. Among families in the lowest quartile, 49% of young people had done so. In the middle two quartiles, 61% had participated in postsecondary education of some sort.

The gap between young people from the highest and lowest income levels in 1998 was narrowest for participation in college—either a community college or CEGEP. On average, almost 29% of young people aged 18 to 21 had attended college, but never university. Among young people aged 18 to 21 from low-income families who had pursued any postsecondary education, the majority went to college.

Among those from high-income families who had pursued any postsecondary education, the majority went to university.

For more information, contact Client Services, Centre for Education Statistics, at 1 800 307-3382; [educationstats@statcan.ca](mailto:educationstats@statcan.ca), or John Zhao, Family and Labour Studies Division, at (613) 941-6333; [john.zhao@statcan.ca](mailto:john.zhao@statcan.ca).

### ■ *Self-Sufficiency Project*

Data from a third follow-up survey to the Self-Sufficiency Project are now available. Funded by Human Resources Development Canada, the Self-Sufficiency Project is a research demonstration project managed by the Social Research and Demonstration Corporation and conducted jointly with Statistics Canada. It was designed to determine the effectiveness of an earnings supplement to single parents who found full-time jobs and agreed to leave the Income Assistance Program.

The earnings supplement was offered for a three-year period to each eligible individual as part of a random assignment experiment. The project, conducted in New Brunswick and British Columbia, was designed to evaluate the effect of the earnings supplement on the employment rates, earnings, family income, income assistance receipt and other outcomes.

The report *When Financial Incentives Pay For Themselves: Interim Findings from the Self-Sufficiency Project's Applicant Study*, published by the Social Research and Demonstration Corporation, is now available. To obtain a copy, contact Elizabeth Rodgers, Social Research and Demonstration Corporation, at (613) 230-1007, ext. 5000; [info@srdc.org](mailto:info@srdc.org). For further information on the findings from this project, contact the Corporation at (613) 237-4311 or Hélène Lavoie, Special Surveys Division, Statistics Canada, at (613) 951-2898.

## ■ WHAT'S NEW IN INCOME STATISTICS?

### ■ *Family income*

In 1999, for the second consecutive year, average family income reached a new high, as Canadians continued to rebound from the recession of the early

1990s. Average after-tax family income reached an estimated \$51,500 in 1999, up 1.9% from 1998. The source of this growth was an increase in market income resulting from improved labour market conditions. Market income—earnings from employment, private retirement pensions and investments—increased 1.4%, while government transfers to families declined 3.3%.

Unattached individuals—people who do not live in families—also made gains. Their average after-tax income was \$22,100 in 1999, up 2.7% from 1998. Couples with children under 18 earned an average after-tax income of \$57,700, also up 2.7%. Families on average paid 2.8% less income tax, resulting in an average increase of about \$1,000 in real income in 1999 than in 1998. Unattached individuals ended up with almost \$600 more.

After remaining stable throughout the early 1990s, inequality of after-tax income was higher at the end of the decade. When families were ranked by income, the top 20% received \$5.20 for every \$1 that went to the bottom 20% in 1999, up from \$4.80 for every \$1 in 1994 (the year with the lowest ratio during the 1990s).

In 1999 an estimated 723,000 families, or 8.6% of all families, were in low income, down from 737,000 in 1998. This was the lowest after-tax low-income rate since 1990 (8.5%). About 1,280,000 unattached individuals, or 29.9%, were in low income in 1999. This was the first time since 1990 that the proportion was below 30%.

These trends are based on a new report, *Income in Canada*, which examines family income and low income in 1999. Data come from two household surveys: the Survey of Consumer Finances (SCF) and the Survey of Labour and Income Dynamics (SLID).

This is the second issue of this annual report, which replaces a series of publications traditionally produced from the SCF. It contains the key tables from the previous series, with many additions. Historical data prior to 1996 are from the SCF, and data since 1996 are from SLID.

*Income in Canada, 1999* (Catalogue no. 75-202-XIE/XPE, \$45) is now available. Data on market income, total income, government transfers, income tax, income after tax and persons in low income are also available free on Statistics Canada's Web site ([www.statcan.ca](http://www.statcan.ca)). From *Canadian statistics*, choose *The*

*people*, then *Families, households and housing*, then *Income*. Data on earnings are also available; from *Canadian statistics*, choose *The People*, then *Labour, employment and unemployment*, then *Earnings*. For more information, contact Client Services, Income Statistics Division, at 1 888 297-7355 or (613) 951-7355; fax: (613) 951-3012; [income@statcan.ca](mailto:income@statcan.ca).

## ■ *Income trends*

*Income Trends in Canada on CD-ROM* provides statistics about income from employment and other sources, taxes, the effect of government transfers on family income, differences in earnings between women and men, seniors incomes, income inequality and the depth of low income, and more. Two decades of data for Canada, the provinces and 15 metropolitan areas are available. This product enables users to easily view trends on-screen, quickly search data, create custom tables, and chart income data.

*Income Trends in Canada on CD-ROM* (Catalogue no. 13F0022XCB, \$195) is now available. For more information about this product, see Statistics Canada's Web site ([www.statcan.ca](http://www.statcan.ca)). From *Our products and services*, choose *Research papers (free)*, then *Personal finance and household finance*, then *Income research paper series*. From the list of titles, choose *Income trends in Canada—user's guide* (Catalogue no. 75F0002MIE01001). For more information, contact Client Services, Income Statistics Division, at 1 888 297-7355 or (613) 951-7355; fax: (613) 951-3012; [income@statcan.ca](mailto:income@statcan.ca).

## ■ *Low income*

Low-income cutoffs (LICOs) for 2000 and low-income measures (LIMs) for 1999, before and after tax, are now available. The updated thresholds for both measurements are contained in a single publication. This publication incorporates a detailed description of both measurements. It also explains how base years are defined and how LICOs are updated using the Consumer Price Index.

LICOs are thresholds, which are determined by analyzing family expenditure data, below which families will likely devote a larger share of income to food, shelter and clothing than would the average family. To reflect differences in the costs of necessities among different community and family sizes, LICOs are defined for five community-size and seven family-size categories.



LIMs, on the other hand, are strictly relative measures of low income, set at 50% of adjusted median family income. These measures are categorized according to the number of adults and children present in families, reflecting the economies of scale inherent in family size and composition.

Although LICOs are often referred to as poverty lines, they have no official status as such, and Statistics Canada does not recommend their use for this purpose. For more information, refer to the article, "On poverty and low income" in this new publication or look on Statistics Canada's Web site ([www.statcan.ca](http://www.statcan.ca)) under *Statistical Methods*, then *Discussion Papers*.

The publication *Low Income Cutoffs from 1991 to 2000 and Low Income Measures from 1990 to 1999* (Catalogue no. 75F0002MIE01007, free) is now available on Statistics Canada's Web site. From *Our products and services*, choose *Research papers (free)*. For more information, or to order this report or custom tabulations, contact Client Services, Income Statistics Division, at 1 888 297-7355 or (613) 951-7355; fax: (613) 951-3012; [income@statcan.ca](mailto:income@statcan.ca).

### ■ ***Employer-sponsored pension plans***

Membership in employer-sponsored registered pension plans (RPPs) rose 3.5% from 1997 to 1999, the first upturn in the biennial trend since 1991. This growth was due mainly to a strong economy led by job creation during 1998 and 1999.

At the end of 1999, nearly 5.3 million workers belonged to 15,557 RPPs. Despite this recent growth in membership, the proportion of employees belonging to these plans was practically unchanged from 1997 at 41%. RPPs covered about 2.9 million men and 2.4 million women in 1999, or 42% of all men and 39% of all women in the paid workforce.

The number of men participating in RPPs rose 2% from 1997 to 1999, the first increase since 1991. This was due primarily to a favourable employment market for men in 1999. The increase among women was more than twice as large. Their membership rose 5% between 1997 and 1999, mainly because of employment growth during the period. Participation among women has generally climbed since the late 1980s because of the increase in the number of women in the paid workforce and the extension of coverage to part-time workers.

At the end of 1999, about \$995 billion had been accumulated in the three main retirement income programs: RPPs, registered retirement savings plans (RRSPs) and the Canada/Quebec Pension Plans (C/QPP). Two-thirds of that amount was held in RPPs, 26% in RRSPs and 5% in the C/QPP. In 1999, Canadians contributed \$68 billion to these three programs. RRSPs accounted for 41%; RPPs made up 28%; and the C/QPP, 31%.

From 1989 to 1999, the assets accumulated in RRSPs increased 172%, and RPPs gained 126%. Since 1994, RRSPs consistently surpassed RPPs both in number of contributors and in total annual contributions. However, participation in RRSPs slowed considerably from 1997 to 1999. The amount contributed rose only about 1% during that period, compared with biennial increases of 20% to 28% since 1991. Contributions to RPPs, however, peaked in 1993 at \$20 billion and have not reached that level since. In 1999, \$19 billion was contributed to RPPs.

A table with data on the labour force and employees by sex covered by an RPP is available, free of charge, on Statistics Canada's Web site ([www.statcan.ca](http://www.statcan.ca)). From *Canadian statistics*, choose *The people*, then *Labour, employment and unemployment*, then *Employment Insurance and pensions*.

*Pension Plans in Canada, January 1, 2000* (Catalogue no. 74-401-XIB/XPB, \$31/\$41) is now available. To obtain custom tabulations or for more information, contact Client Services, Income Statistics Division, at 1 888 297-7355 or (613) 951-7355; fax: (613) 951-3012; [income@statcan.ca](mailto:income@statcan.ca).

### ■ ***Estimates of household spending***

Households spent an average of \$55,800 in 2000 on everything from shelter to travel, allocating more to vehicle purchases and energy costs than in previous years. On average, households spent about 4% more in 2000, a year of strong economic growth. The increase in household spending marginally exceeded the Consumer Price Index inflation rate of 3% in 2000.

Personal taxes accounted for an estimated 22% of the household budget, shelter costs claimed about 19%, and food, 11%. These proportions were virtually unchanged from 1999. Transportation took 14%, continuing the slight increase seen in 1999.

Spending on all types of transportation averaged \$7,580 per household, a 10% increase from 1999, compared with an 8% increase in 1998. The increase was due mainly to higher spending on the purchase of all types of new and used vehicles, especially trucks, vans and sport utility vehicles. The 8% of households purchasing trucks or vans in 2000 reported spending an average \$15,970. The 10% of households leasing a vehicle reported spending just under \$5,000, approximately the same as in 1999.

The percentage of households that purchased new computers and related hardware continued to rise in 2000, from 15% to 18%. Households that bought new computers reported spending \$1,570 on average in 2000 compared with \$1,600 in 1999, as prices for these items fell. Computer ownership continued to rise, reaching an estimated 55% of households by the end of 2000.

In 2000, food and shelter accounted for half of the budget for households in the lowest income quintile, and personal income taxes for 3%. In contrast, households in the highest income quintile allocated only one-quarter of their budgets to food and shelter, and 30% to personal income taxes. These proportions were unchanged from 1999.

For the 53% of Canadian households reporting health insurance premiums, the average expenditure rose 12% to \$790 in 2000. Health insurance premiums include payments that are levied in some provinces and for some population groups for public hospital, medical and drug plans. They also include payments to private plans that provide dental, accident, disability and travel coverage.

Two tables presenting summary-level household spending data are available free on Statistics Canada's Web site ([www.statcan.ca](http://www.statcan.ca)): one for Canada and the provinces and one for selected metropolitan areas. A table presenting dwelling characteristics and household equipment is also available. From *Canadian statistics*, see *The people*, then choose *Families, households and housing*, then *Expenditures* or *Housing*.

A *User Guide for the Survey of Household Spending* (Catalogue no. 62F0026MIE01004, free) presenting information about survey methodology, concepts, and data quality is also available. From *Our products and services*, choose *Research papers (free)*, then *Personal finance and household finance*, then *Household expenditures research paper series*.

Five tables present detailed household spending data: *Canada, Provinces and Selected Metropolitan Areas* (Catalogue no. 62F0031XDB); *Household Income Quintile, Canada and Provinces* (Catalogue no. 62F0032XDB); *Housing Tenure, Canada* (Catalogue no. 62F0033XDB); *Household Type, Canada* (Catalogue no. 62F0034XDB); and *Size of Area of Residence, Canada* (Catalogue no. 62F0035XDB).

Five tables present data on dwelling characteristics and household equipment: *Canada, Provinces and Selected Metropolitan Areas* (Catalogue no. 62F0041XDB); *Income Quintile, Canada* (Catalogue no. 62F0042XDB); *Housing Tenure, Canada* (Catalogue no. 62F0043XDB); *Household Type, Canada* (Catalogue no. 62F0044XDB); and *Size of Area of Residence, Canada* (Catalogue no. 62F0045XDB).

All 10 tables are now available at \$125 each. Custom tabulations are also available. A public-use microdata file is scheduled for release in May 2002, and a publication will follow in June 2002.

For more information about the Survey of Household Spending, contact Client Services, Income Statistics Division, at 1 888 297-7355 or (613) 951-7355; fax: (613) 951-3012; [income@statcan.ca](mailto:income@statcan.ca).

## ■ WHAT'S NEW IN SAADD?

### ■ *Longitudinal Administrative Databank*

Data for 1999 have been added to the Longitudinal Administrative Databank (LAD), which now spans 18 years (1982 to 1999) and contains information about individuals and census families.

The LAD is a 20% longitudinal sample of Canadian taxfilers, and provides a tool for studying the changes in income that Canadians and their families experience. It contains a wide variety of income and demographic variables such as employment income, self-employment income, registered retirement savings plan contributions, alimony, age, sex, and census family composition. The large sample (4.5 million persons in 1999) ensures reliable estimates for Canada, the provinces, census metropolitan areas, and several subprovincial regions, based on aggregations of postal codes.



Custom tabulations, including 1999 data, are now available (Catalogue no. 13C0019, variable price). For more information, contact Client Services, Small Area and Administrative Data Division, at (613) 951-9720; fax: (613) 951-4745; [saadinfo@statcan.ca](mailto:saadinfo@statcan.ca).

## ■ *RRSP contributions*

Canadians contributed more than ever to their Registered Retirement Savings Plans (RRSPs) in 2000, according to income tax returns for the tax year. Almost 6.3 million taxfilers contributed just under \$29.3 billion—both records.

The number of contributors was up 1.4% from 1999, and the level of contributions increased at almost twice that pace (2.6%). Contributions rose everywhere except Saskatchewan, British Columbia, the Northwest Territories and Nunavut. The number of contributors increased in just over half the provinces and territories.

The largest percentage gain in contributions was found in Yukon, up 10.2% from 1999. Taxfilers in New Brunswick contributed just over \$471 million, up 9.7%, the biggest gain among the provinces. Quebec taxfilers followed: their contributions rose 8.6% to \$6.6 billion.

Quebec recorded the largest increase in contributors (5.2%). About 36% of eligible taxfilers in Ontario and Alberta made contributions, the highest proportion among the provinces and territories. Ontario taxfilers contributed about 42% of the national total.

In addition, more women contributed to RRSPs in 2000. Women accounted for 45% of contributors, up from 44% in 1999. They also accounted for 39% of contributions, up from 37% in 1999. Contributors in 2000 tended to be slightly older as well.

The median contribution in Canada last year was \$2,700, up slightly from \$2,600 in 1999. The median increased in all provinces and territories except Prince Edward Island, Manitoba and the Northwest Territories, after inflation was taken into account.

Databanks of *RRSP Contributors* (Catalogue no. 17C0006, variable price), *RRSP Contribution Limit* (Catalogue no. 17C0011, variable price) and *Canadian Taxfilers* (Catalogue no. 17C0010, variable price) are available for Canada, the provinces and territories, cities, towns, census metropolitan areas, census divisions, as well as areas as small as forward sortation areas (the first three characters of the postal code) and letter carrier routes.

For more information, contact Client Services, Small Area and Administrative Data Division, at (613) 951-9720; fax: (613) 951-4745; [saadinfo@statcan.ca](mailto:saadinfo@statcan.ca).

## ■ *Interest and investment income*

The number of Canadians reporting investment income in 2000 rose twice as quickly compared with 1999. About 8.5 million Canadians reported investment income in 2000, up 7.8% from 1999. The amount of investment income reached \$31.8 billion, an increase of 3.5% after adjustment for inflation.

Most provinces and territories had more people reporting investment income in 2000. Quebec (21.6%) posted the largest increase, followed by New Brunswick (7.8%). Only Nunavut, the Northwest Territories and Saskatchewan had fewer people reporting investment income. Similarly, total investment income rose in the majority of provinces and territories. The largest percentage gains were found in Prince Edward Island, Yukon and Quebec. Investment income fell in the Northwest Territories, Saskatchewan, Manitoba and British Columbia.

Unlike in 1999, the increase in interest income, for both savers and investors, was responsible for the increase in investment income in 2000. For the first time since 1995, the number of savers climbed—to 4.8 million in 2000 from 4.76 million in 1999, an increase of 0.9%, but still lower than in 1998. Savers interest income rose 8.5% to \$9.6 billion in 2000. Higher interest rates may be partly responsible for this increase.

The number of investors reached 3.7 million in 2000, up 18.5% from 1999. However, the dollars received from these investments advanced only 1.5% to \$22.2 billion. In 2000, dividends from taxable Canadian corporations accounted for 55% of investment income, down from 59% in 1999. This was the first drop in four years.

Databanks for *Savers* (Catalogue no. 17C0009, variable price), *Investors* (Catalogue no. 17C0007, variable price) and *Investment Income* (Catalogue no. 17C0008, variable price) are available for Canada, the provinces and territories, cities, towns, census metropolitan areas, census divisions, as well as areas as small as forward sortation areas (the first three letters of the postal code) and letter carrier routes.

For more information, contact Client Services, Small Area and Administrative Data Division, at (613) 951-9720; fax: (613) 951-4745; [saadinfo@statcan.ca](mailto:saadinfo@statcan.ca).

## ■ UPCOMING CONFERENCE

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### ■ *Statistics Canada, Economic Conference 2002: Innovation in an Evolving Economy May 6-7, 2002, Ottawa*

Statistics Canada's annual Economic Conference, to be held at the Ottawa Congress Centre, provides a forum for the exchange of empirical research among the business, government, research and labour communities. The conference is also a means to promote economic and socio-economic analysis while subjecting existing data to critical assessment as part of an ongoing process of statistical development and review. This year's theme is "Innovation in an Evolving Economy."

Rapidly changing economic and social realities demand innovative responses. Meeting these challenges requires new partnerships, as well as investment in new technologies, socio-economic infrastructure and the health and education of citizens.

The Economic Conference 2002 will include several plenary sessions featuring invited guest speakers who are leading authorities in their fields. It will also include presentations providing new perspectives on topics related to investing in a competitive Canada, investing in the global context, investing in infrastructure, and investing in an innovative work force.

For more information, contact Conference Planning Services, Statistics Canada, at (613) 951-1135; fax: (613) 951-5544; [neverut@statcan.ca](mailto:neverut@statcan.ca).

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### Perspectives

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# Key labour and income facts

## *Selected charts and analysis*

This section presents charts and analysis featuring one or more of the following sources. For general inquiries, contact Joanne Bourdeau at (613) 951-4722; [bourjoa@statcan.ca](mailto:bourjoa@statcan.ca).

### **Administrative data**

*Small area and administrative data*

Frequency: Annual

Contact: Customer Services  
(613) 951-9720

### **Business surveys**

*Annual Survey of Manufactures*

Frequency: Annual

Contact: Dissemination agent  
(613) 951-9497

*Annual Surveys—Service Industries*

Frequency: Annual

Contact: Lucie Lussier  
(613) 951-0410

*Business Conditions Survey of Manufacturing Industries*

Frequency: Quarterly

Contact: Claude Robillard  
(613) 951-3507

### **Census**

*Census labour force characteristics*

Frequency: Quinquennial

Contact: Michel Côté  
(613) 951-6896

*Census income statistics*

Frequency: Quinquennial

Contact: John Gartley  
(613) 951-6906

### **Employment and income surveys**

*Labour Force Survey*

Frequency: Monthly

Contact: Marc Lévesque  
(613) 951-4090

*Survey of Employment, Payrolls and Hours*

Frequency: Monthly

Contact: Sylvie Picard  
(613) 951-4090

*Help-wanted Index*

Frequency: Monthly

Contact: Sylvie Picard  
(613) 951-4090

*Employment Insurance Statistics Program*

Frequency: Monthly

Contact: Sylvie Picard  
(613) 951-4090

*Major wage settlements*

Bureau of Labour Information  
(Human Resources

Development Canada)

Frequency: Quarterly  
Contact: (819) 997-3117  
1 800 567-6866

*Labour income*

Frequency: Quarterly

Contact: Anna MacDonald  
(613) 951-3784

*Survey of Labour and Income Dynamics*

Frequency: Annual

Contact: Client Services  
(613) 951-7355 or  
1 888 297-7355

*Survey of Financial Security*

Frequency: Occasional

Contact: Client Services  
(613) 951-7355 or  
1 888 297-7355

*Survey of Household Spending*

Frequency: Annual

Contact: Client Services  
(613) 951-7355 or  
1 888 297-7355

### **General social survey**

*Education, work and retirement*

Frequency: Occasional

Contact: Client Services  
(613) 951-5979

*Social and community support*

Frequency: Occasional

Contact: Client Services  
(613) 951-5979

*Time use*

Frequency: Occasional

Contact: Client Services  
(613) 951-5979

### **Pension surveys**

*Pension Plans in Canada Survey*

Frequency: Annual

Contact: Patricia Schembari  
(613) 951-9502

*Quarterly Survey of Trusteed Pension Funds*

Frequency: Quarterly

Contact: Bob Anderson  
(613) 951-4034

### **Special surveys**

*Survey of Work Arrangements*

Frequency: Occasional

Contact: Ernest B. Akyeampong  
(613) 951-4624

*Adult Education and Training Survey*

Frequency: Occasional

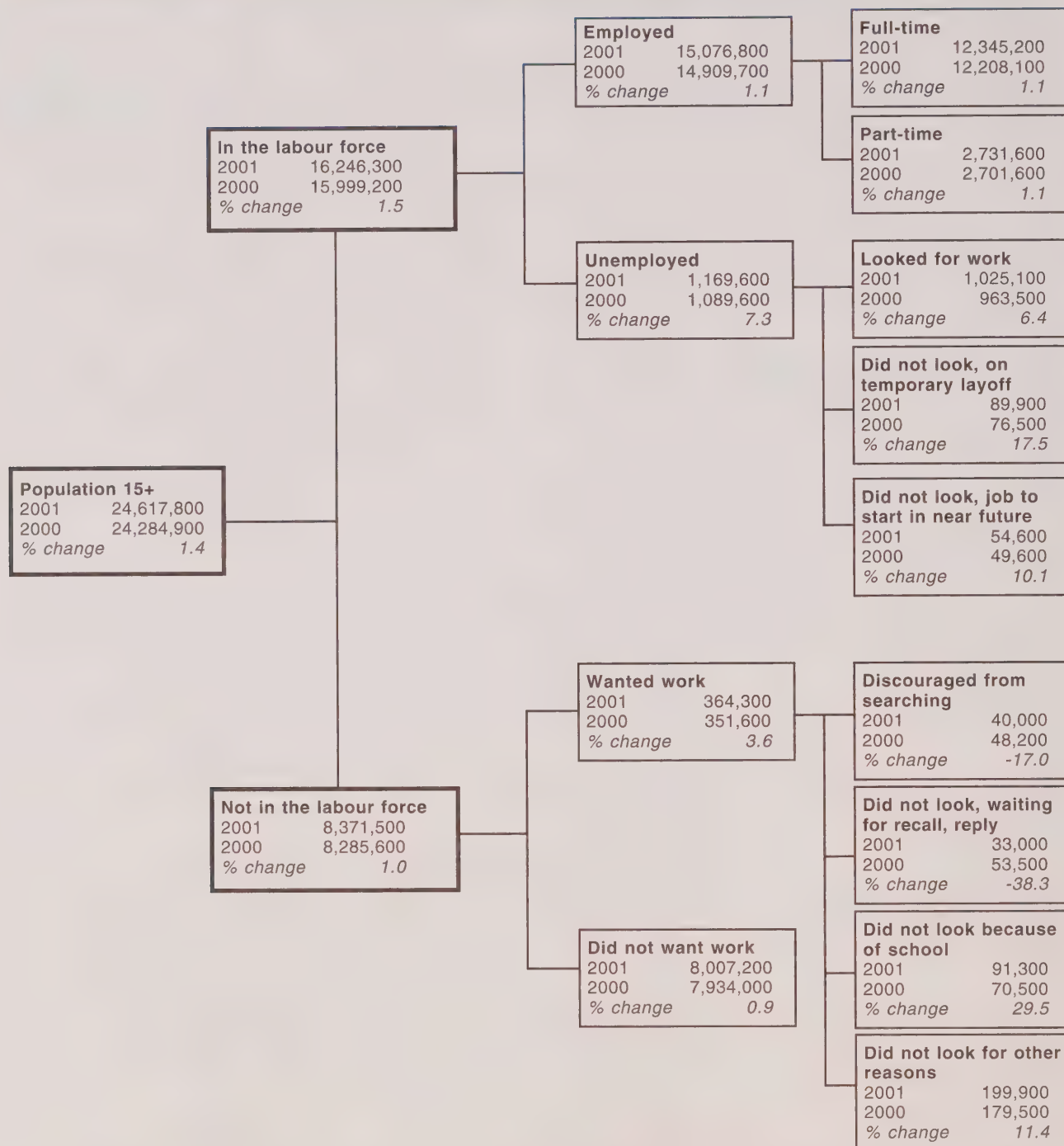
Contact: Client Services  
(613) 951-7355 or  
1 888 297-7355

*Graduate Surveys*

(Postsecondary)

Frequency: Occasional  
Contact: Client Services  
(613) 951-7608

## Labour force status of Canada's working-age population

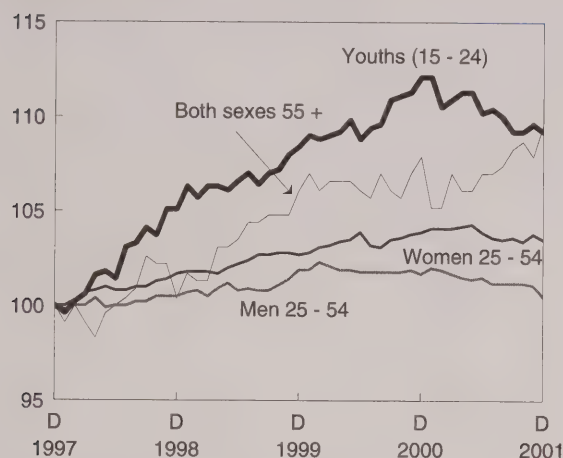


Source: Labour Force Survey, annual averages



**In 2001, the employment rate for older workers increased the most.**

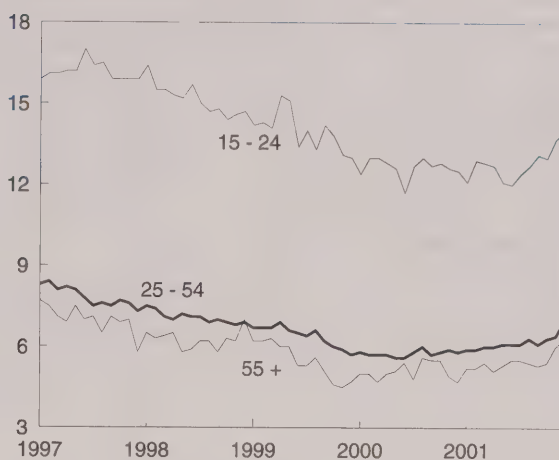
Employment rate index, December 1997=100



Source: Labour Force Survey, seasonally adjusted

**The unemployment rate increased for all age groups in 2001.**

Unemployment rate (%)



Source: Labour Force Survey, seasonally adjusted

**In percentage terms, employment growth outpaced population growth only for older workers in 2001.**

	December level			December-to-December change			
	1997	2000	2001	1997 to 2001	2000 to 2001	1997 to 2001	2000 to 2001
	'000			'000		%	
<b>Population 15 +</b>	<b>23,509.1</b>	<b>24,435.3</b>	<b>24,764.1</b>	<b>1,255.0</b>	<b>328.8</b>	<b>5.3</b>	<b>1.3</b>
Youths (15 - 24)	3,983.7	4,084.1	4,115.2	131.5	31.1	3.3	0.8
Men 25 - 54	6,745.8	6,950.2	7,009.6	263.8	59.4	3.9	0.9
Women 25 - 54	6,766.3	6,955.5	7,005.5	239.2	50.0	3.5	0.7
Both sexes 55 +	6,013.3	6,445.5	6,633.8	620.5	188.3	10.3	2.9
<b>Employment 15 +</b>	<b>13,951.6</b>	<b>15,066.7</b>	<b>15,091.4</b>	<b>1,139.8</b>	<b>24.7</b>	<b>8.2</b>	<b>0.2</b>
Youths (15 - 24)	2,039.2	2,344.4	2,300.9	261.7	-43.5	12.8	-1.9
Men 25 - 54	5,689.0	5,954.1	5,937.3	248.3	-16.8	4.4	-0.3
Women 25 - 54	4,843.6	5,177.5	5,190.5	346.9	13.0	7.2	0.3
Both sexes 55 +	1,379.9	1,590.7	1,662.7	282.8	72.0	20.5	4.5
<b>Unemployment 15 +</b>	<b>1,294.1</b>	<b>1,103.3</b>	<b>1,318.4</b>	<b>24.3</b>	<b>215.1</b>	<b>1.9</b>	<b>19.5</b>
Youths (15 - 24)	385.8	334.9	373.7	-12.1	38.8	-3.1	11.6
Men 25 - 54	451.5	367.0	479.5	28.0	112.5	6.2	30.7
Women 25 - 54	372.4	323.5	352.7	-19.7	29.2	-5.3	9.0
Both sexes 55 +	84.5	78.0	112.5	28.0	34.5	33.1	44.2

Source: Labour Force Survey, seasonally adjusted

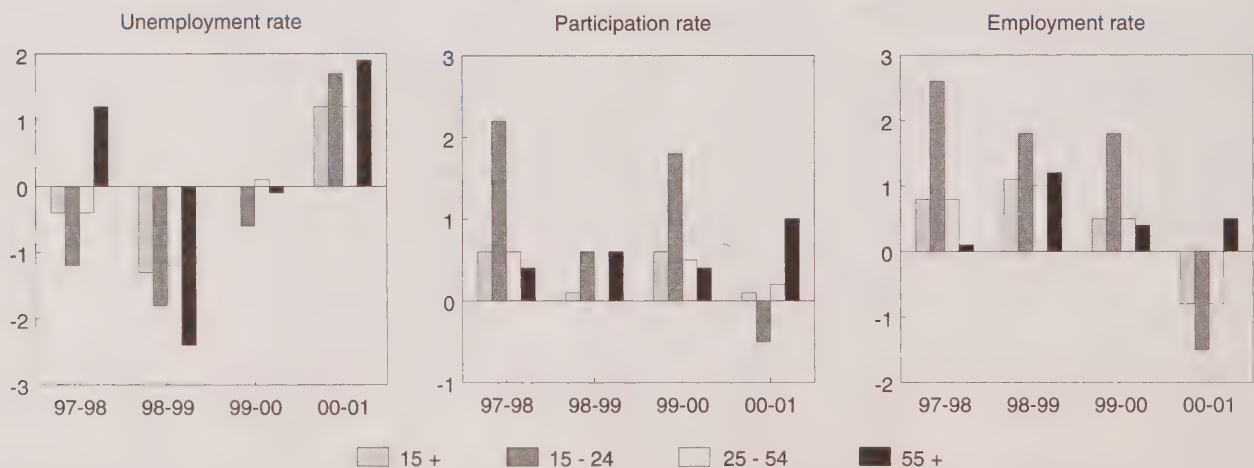
### Rising labour force participation nudged up the unemployment rate for older persons.

	December level			December-to-December change	
	1997	2000	2001	1997 to 2001	2000 to 2001
	%			%-point	
<b>Unemployment rate 15 +</b>	<b>8.5</b>	<b>6.8</b>	<b>8.0</b>	<b>-0.5</b>	<b>1.2</b>
Youths (15 - 24)	15.9	12.5	14.0	-1.9	1.5
Men 25 - 54	7.4	5.8	7.5	0.1	1.7
Women 25 - 54	7.1	5.9	6.4	-0.7	0.5
Both sexes 55 +	5.8	4.7	6.3	0.5	1.6
<b>Participation rate 15 +</b>	<b>64.9</b>	<b>66.2</b>	<b>66.3</b>	<b>1.4</b>	<b>0.1</b>
Youths (15 - 24)	60.9	65.6	65.0	4.1	-0.6
Men 25 - 54	91.0	90.9	91.5	0.5	0.6
Women 25 - 54	77.1	79.1	79.1	2.0	0.0
Both sexes 55 +	24.4	25.9	26.8	2.4	0.9
<b>Employment rate 15 +</b>	<b>59.3</b>	<b>61.7</b>	<b>60.9</b>	<b>1.6</b>	<b>-0.8</b>
Youths (15 - 24)	51.2	57.4	55.9	4.7	-1.5
Men 25 - 54	84.3	85.7	84.7	0.4	-1.0
Women 25 - 54	71.6	74.4	74.1	2.5	-0.3
Both sexes 55 +	22.9	24.7	25.1	2.2	0.4

Source: Labour Force Survey, seasonally adjusted

### For two years in a row, youth employment rates have decreased the most.

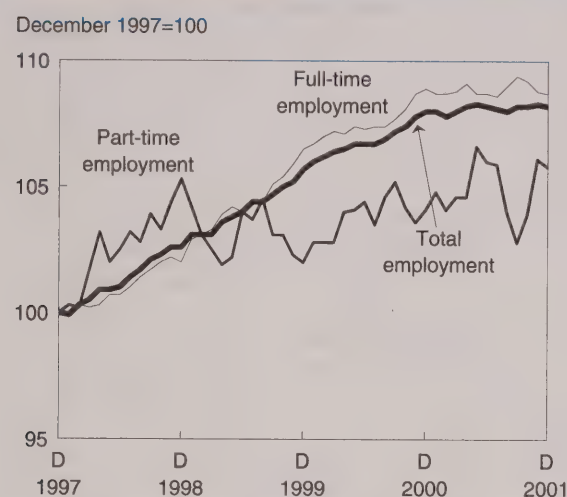
December-to-December percentage-point change



Source: Labour Force Survey, seasonally adjusted



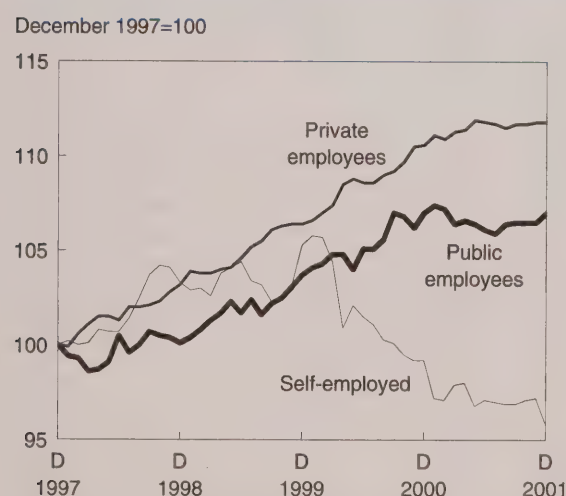
The slight rise in overall employment in 2001 was entirely attributable to an increase in part-time work.



	Employment	Full-time	Part-time
	'000		
<b>December level</b>			
1997	13,951.6	11,348.5	2,603.1
2000	15,066.7	12,357.5	2,709.2
2001	15,091.4	12,337.1	2,754.3
<b>Absolute change</b>			
1997 to 2001	1,139.8	988.6	151.2
2000 to 2001	24.7	-20.4	45.1
	%		
<b>Percentage change</b>			
1997 to 2001	8.2	8.7	5.8
2000 to 2001	0.2	-0.2	1.7

Source: Labour Force Survey, seasonally adjusted

Self-employment continued to decline in 2001.



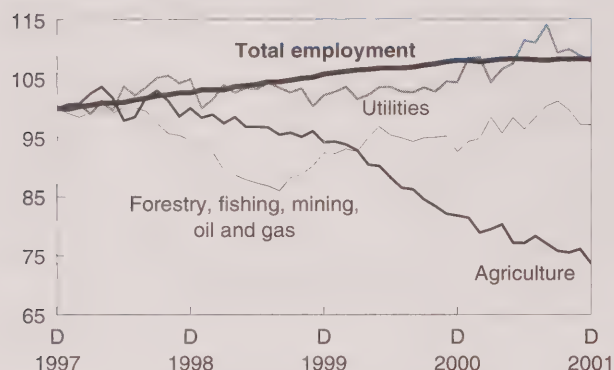
	Total employment	Employees		Self-employed
		Public	Private	
	'000			
<b>December level</b>				
1997	13,951.6	2,649.1	8,920.1	2,382.4
2000	15,066.7	2,835.4	9,867.5	2,363.8
2001	15,091.4	2,833.9	9,976.3	2,281.2
<b>Absolute change</b>				
1997 to 2001	1,139.8	184.8	1,056.2	-101.2
2000 to 2001	24.7	-1.5	108.8	-82.6
	%			
<b>Percentage change</b>				
1997 to 2001	8.2	7.0	11.8	-4.2
2000 to 2001	0.2	-0.1	1.1	-3.5

Source: Labour Force Survey, seasonally adjusted

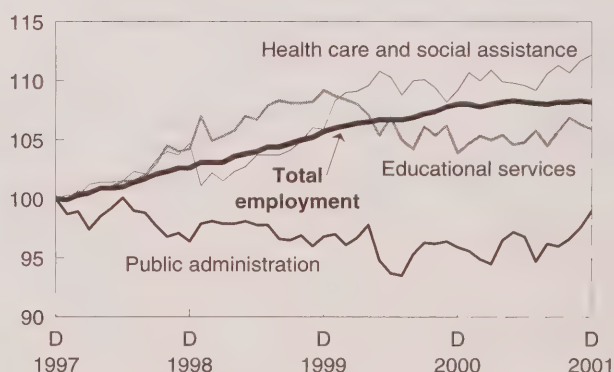
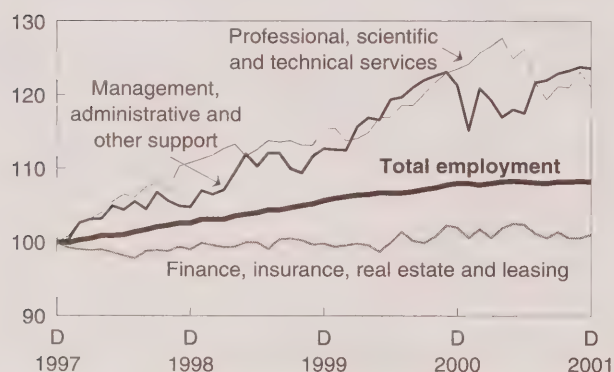
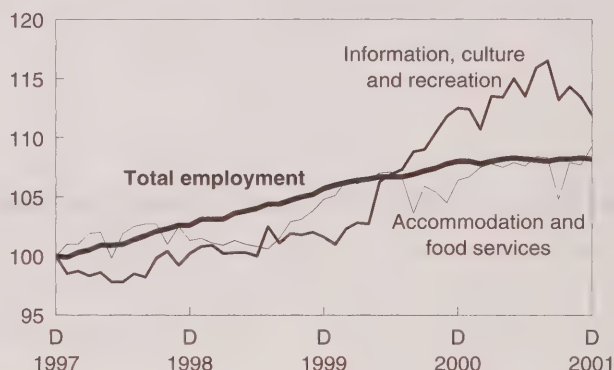
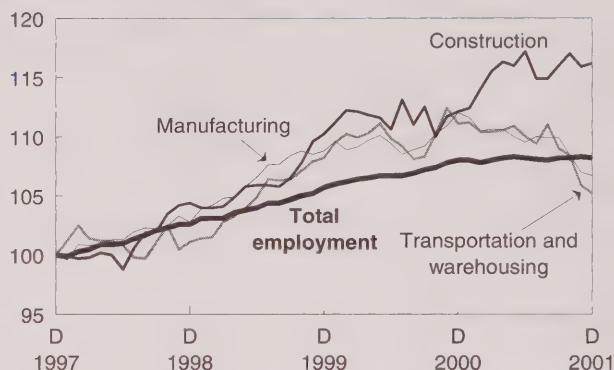
Over the last four years, employment growth has been strongest in construction, trade, and management, administrative and other support industries. In 2001, manufacturing and transportation and warehousing employment fell.

### Employment index

December 1997=100



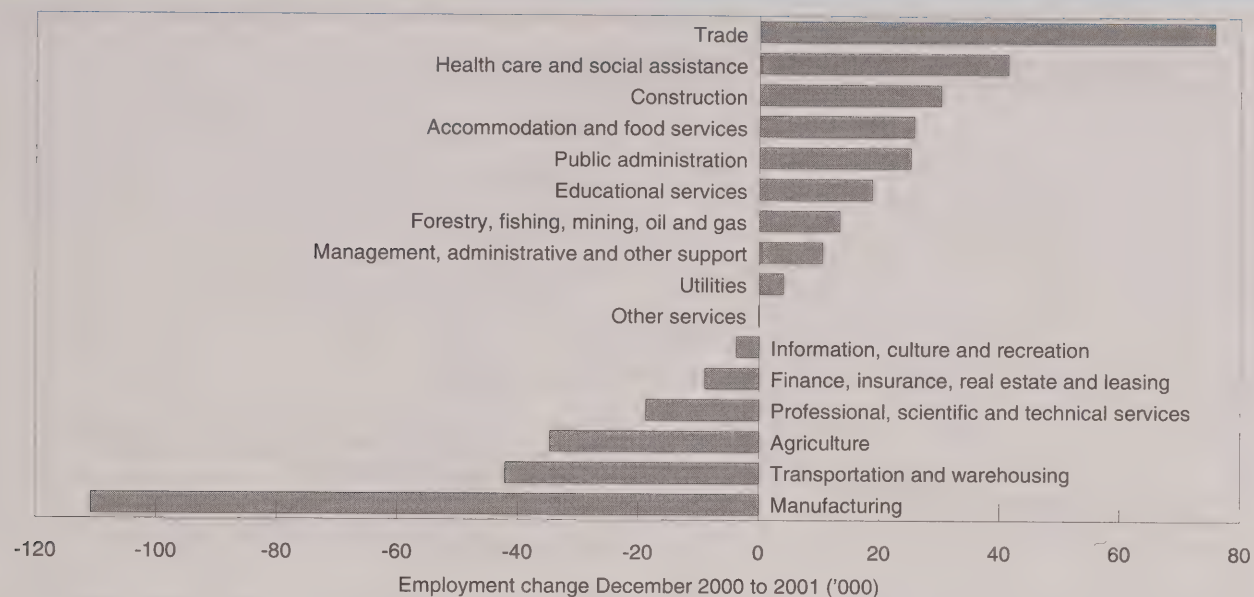
December 1997=100



Source: Labour Force Survey, seasonally adjusted



### Four of the top five growth industries in 2001 were in the service sector.

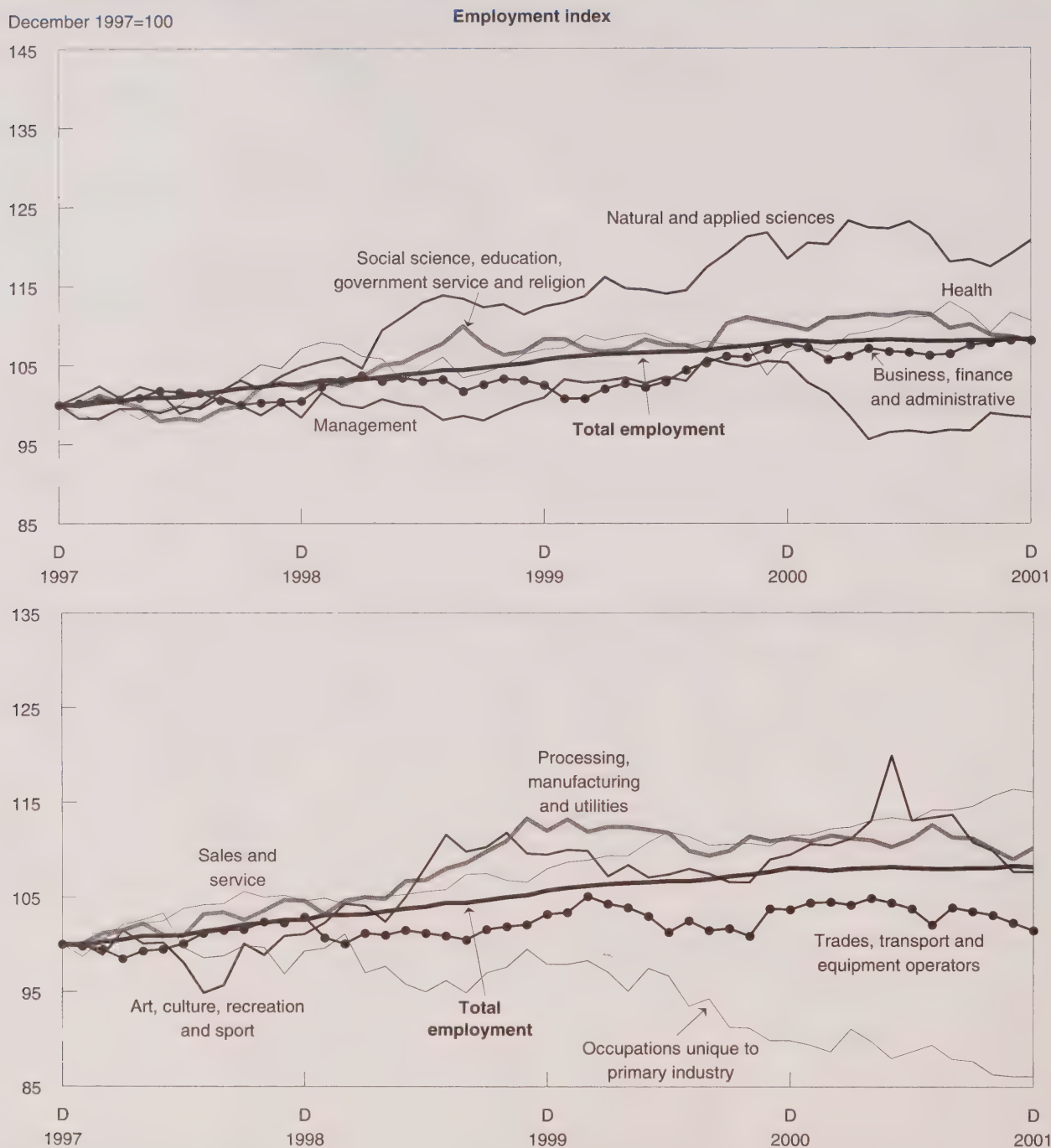


Source: Labour Force Survey, seasonally adjusted

	December level			December-to-December change			
	1997	2000	2001	1997 to 2001	2000 to 2001	1997 to 2001	2000 to 2001
	'000			'000		%	
<b>All industries</b>	<b>13,951.6</b>	<b>15,066.7</b>	<b>15,091.4</b>	<b>1,139.8</b>	<b>24.7</b>	<b>8.2</b>	<b>0.2</b>
Goods-producing	3,646.7	3,890.4	3,792.4	145.7	-98.0	4.0	-2.5
Agriculture	424.6	347.5	312.8	-111.8	-34.7	-26.3	-10.0
Forestry, fishing, mining, oil and gas	299.9	277.8	291.1	-8.8	13.3	-2.9	4.8
Utilities	112.9	117.7	121.7	8.8	4.0	7.8	3.4
Construction	730.7	818.8	848.9	118.2	30.1	16.2	3.7
Manufacturing	2,078.7	2,328.7	2,217.9	139.2	-110.8	6.7	-4.8
Services-producing	10,305.0	11,176.2	11,299.0	994.0	122.8	9.6	1.1
Trade	2,123.3	2,354.7	2,430.3	307.0	75.6	14.5	3.2
Transportation and warehousing	709.0	787.9	745.8	36.8	-42.1	5.2	-5.3
Finance, insurance, real estate and leasing	864.4	882.0	873.0	8.6	-9.0	1.0	-1.0
Professional, scientific and technical services	800.6	988.7	969.9	169.3	-18.8	21.1	-1.9
Management, administrative and other support	460.9	559.2	569.6	108.7	10.4	23.6	1.9
Educational services	916.8	952.2	970.9	54.1	18.7	5.9	2.0
Health care and social assistance	1,395.5	1,523.9	1,565.2	169.7	41.3	12.2	2.7
Information, culture and recreation	622.8	700.7	696.9	74.1	-3.8	11.9	-0.5
Accommodation and food services	907.4	965.8	991.4	84.0	25.6	9.3	2.7
Other services	709.1	698.5	698.4	-10.7	-0.1	-1.5	0.0
Public administration	795.3	762.5	787.6	-7.7	25.1	-1.0	3.3

Source: Labour Force Survey, seasonally adjusted

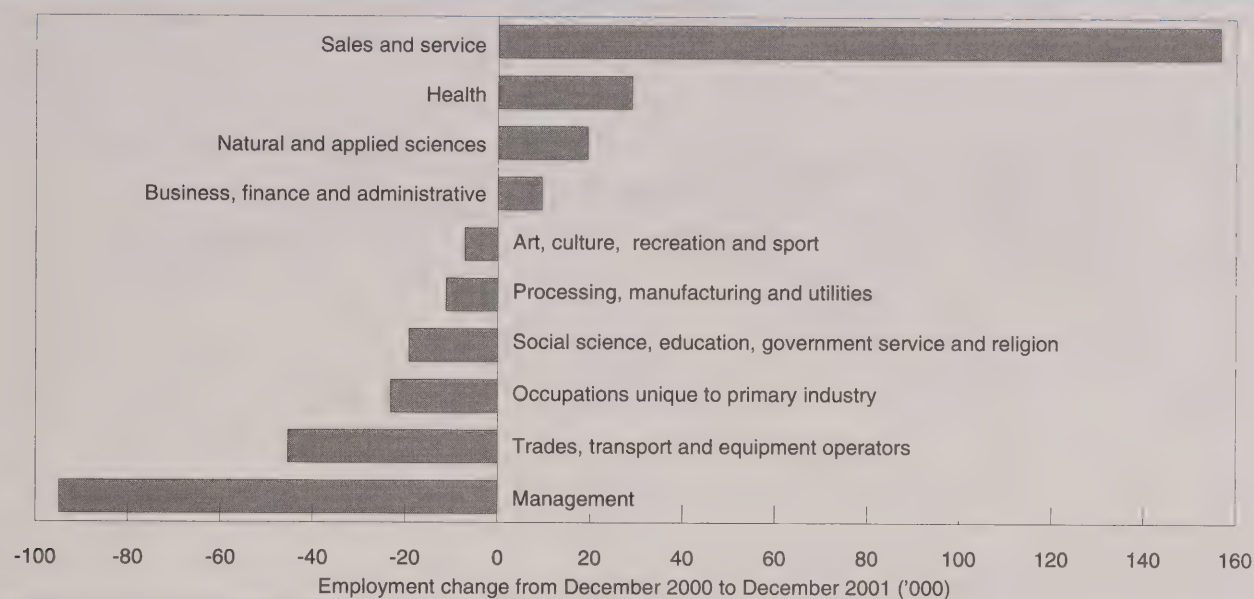
Over the last five years, natural and applied science occupations increased the most in percentage terms. This group includes computer programmers, systems analysts and computer engineers.



Source: Labour Force Survey, seasonally adjusted



**With gains in the service industries, sales and service occupations, increased the most. The largest decline occurred in management.**

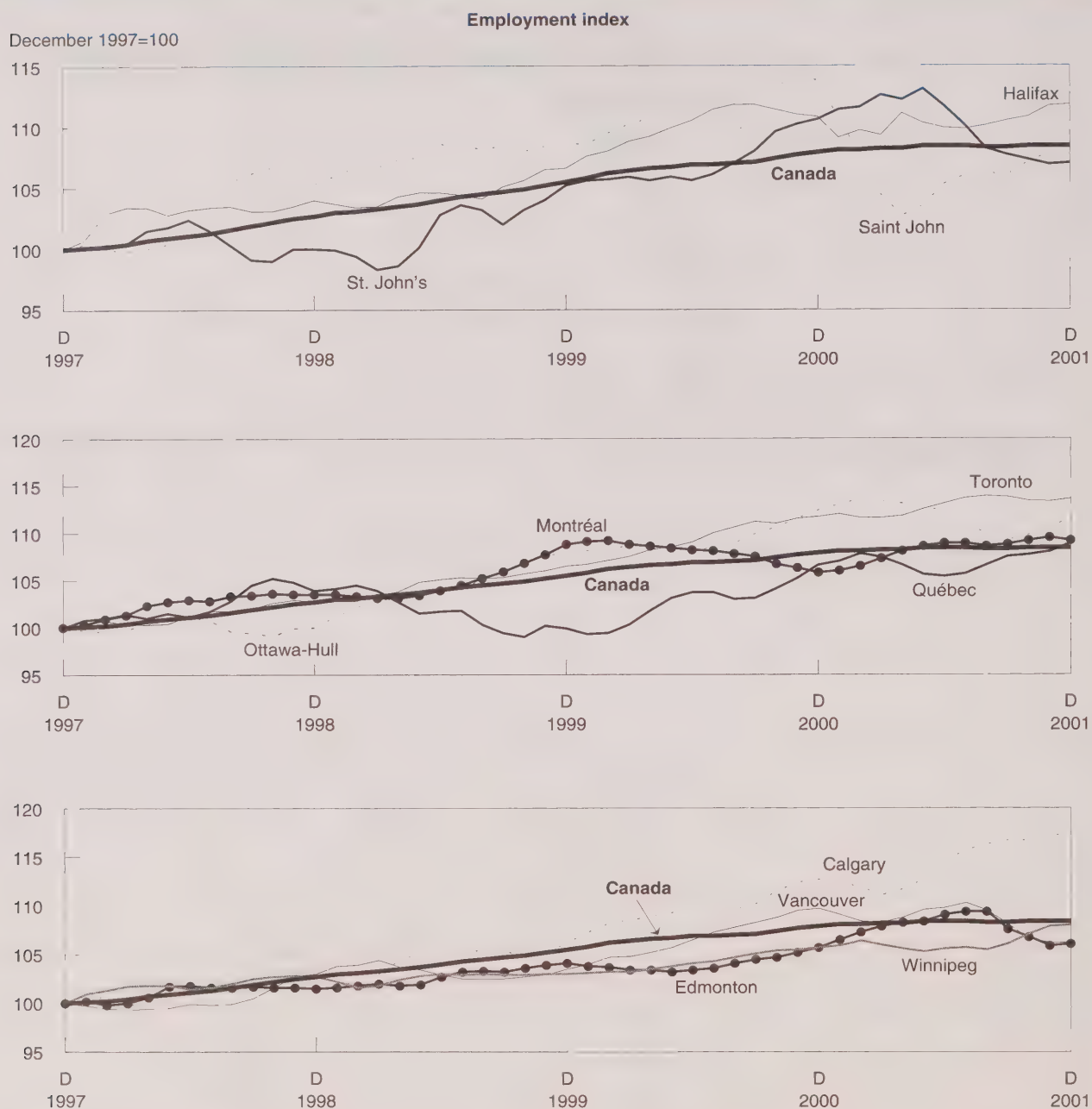


Source: Labour Force Survey, seasonally adjusted

	December level			December-to-December change			
	1997	2000	2001	1997 to 2001	2000 to 2001	1997 to 2001	2000 to 2001
	'000			'000		%	
<b>All occupations</b>	<b>13,951.6</b>	<b>15,076.8</b>	<b>15,090.2</b>	<b>1,138.6</b>	<b>13.4</b>	<b>8.2</b>	<b>0.1</b>
Management	1,376.3	1,449.1	1,354.2	-22.1	-94.9	-1.6	-6.5
Business, finance and administrative	2,544.8	2,741.7	2,751.2	206.4	9.5	8.1	0.3
Natural and applied sciences	831.5	984.1	1,003.5	172.0	19.4	20.7	2.0
Health	725.7	773.5	802.5	76.8	29.0	10.6	3.7
Social science, education, government service and religion	935.1	1,028.7	1,009.5	74.4	-19.2	8.0	-1.9
Art, culture, recreation and sport	385.6	422.3	415.1	29.5	-7.2	7.7	-1.7
Sales and service	3,374.0	3,761.7	3,918.3	544.3	156.6	16.1	4.2
Trades, transport and equipment operators	2,069.0	2,145.5	2,100.1	31.1	-45.4	1.5	-2.1
Occupations unique to primary industry	612.3	550.3	527.1	-85.2	-23.2	-13.9	-4.2
Processing, manufacturing and utilities	1,097.3	1,219.9	1,208.7	111.4	-11.2	10.2	-0.9

Source: Labour Force Survey, seasonally adjusted

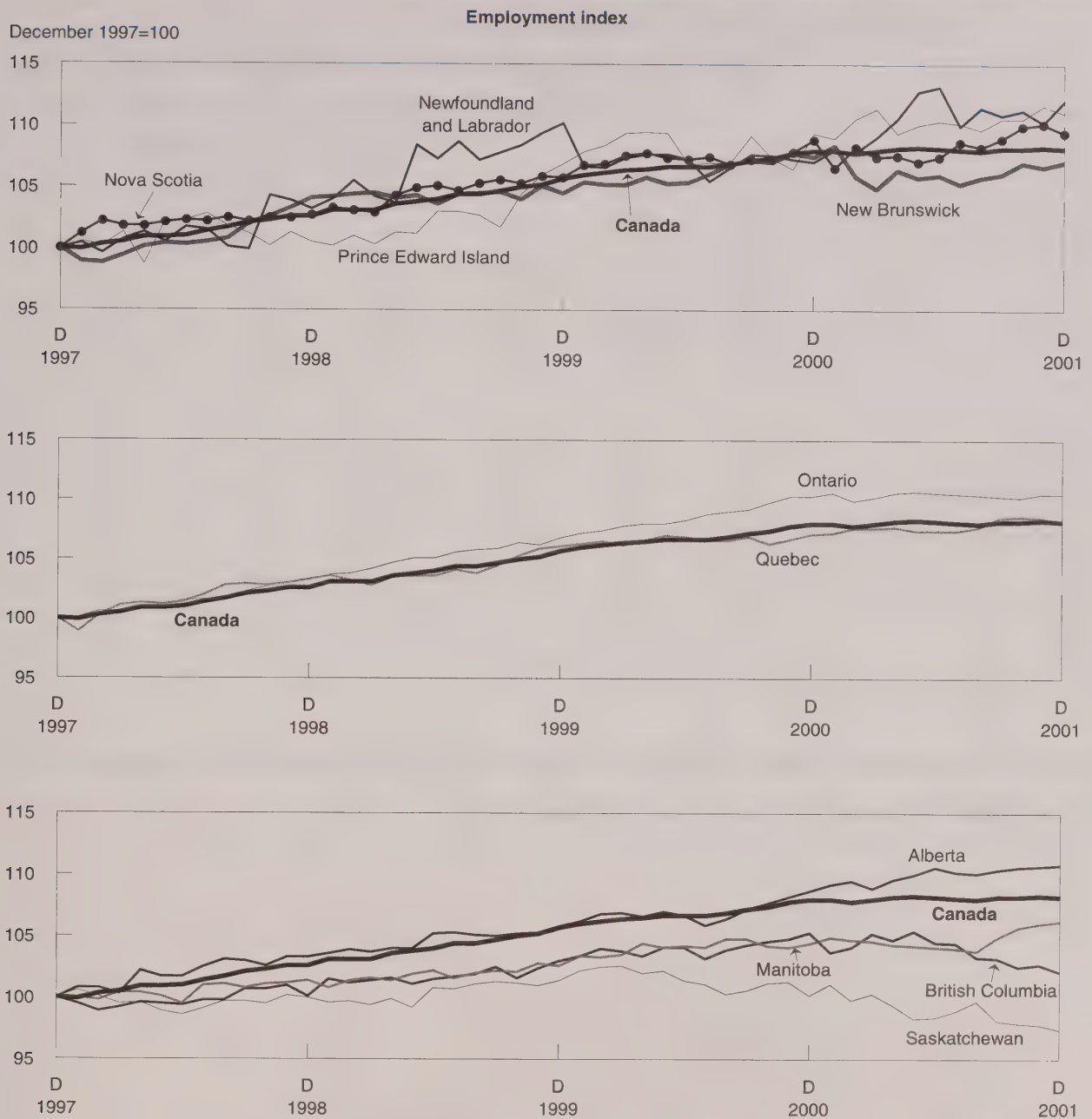
Among Canada's major metropolitan areas, employment growth was strongest in Calgary in 2001.



Source: Labour Force Survey, seasonally adjusted, three-month moving average



**In percentage terms, job growth was strongest in Newfoundland and Labrador in 2001.**



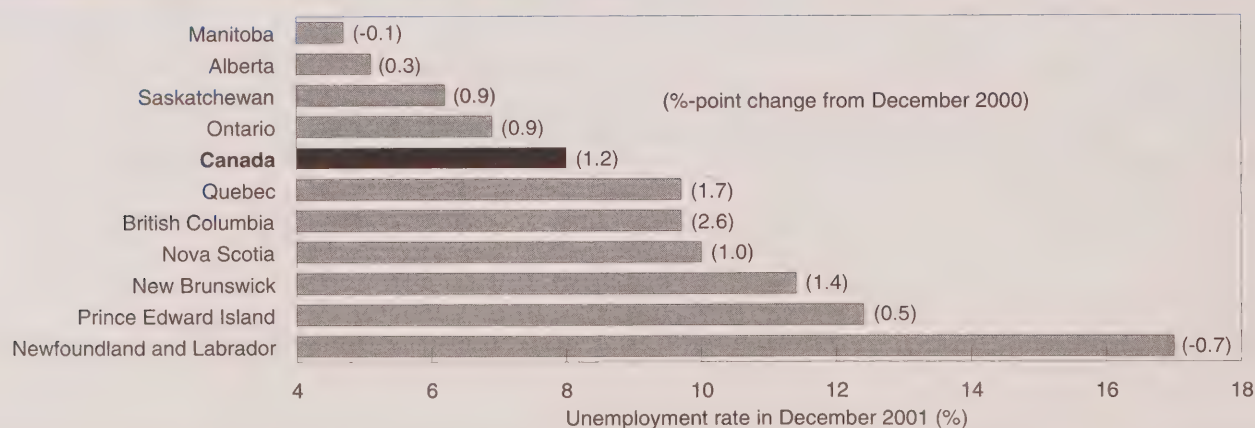
Source: Labour Force Survey, seasonally adjusted

**Quebec had the greatest number of newly employed people in 2001, but also the greatest number of newly unemployed.**

	December level			December-to-December change			
	1997	2000	2001	1997 to 2001	2000 to 2001	1997 to 2001	2000 to 2001
	'000			'000		%	
Employed							
Canada	13,951.6	15,066.7	15,091.4	1,139.8	24.7	8.2	0.2
Newfoundland and Labrador	191.2	204.7	214.4	23.2	9.7	12.1	4.7
Prince Edward Island	59.7	65.3	66.3	6.6	1.0	11.1	1.5
Nova Scotia	390.5	425.4	427.6	37.1	2.2	9.5	0.5
New Brunswick	314.7	338.3	336.9	22.2	-1.4	7.1	-0.4
Quebec	3,223.6	3,451.6	3,486.8	263.2	35.2	8.2	1.0
Ontario	5,403.8	5,960.5	5,970.6	566.8	10.1	10.5	0.2
Manitoba	532.6	556.2	565.5	32.9	9.3	6.2	1.7
Saskatchewan	478.1	479.2	465.9	-12.2	-13.3	-2.6	-2.8
Alberta	1,484.0	1,613.3	1,644.2	160.2	30.9	10.8	1.9
British Columbia	1,873.4	1,972.3	1,913.3	39.9	-59.0	2.1	-3.0
Unemployed							
Canada	1,294.1	1,103.3	1,318.4	24.3	215.1	1.9	19.5
Newfoundland and Labrador	40.7	44.0	43.9	3.2	-0.1	7.9	-0.2
Prince Edward Island	10.3	8.8	9.4	-0.9	0.6	-8.7	6.8
Nova Scotia	50.3	41.9	47.7	-2.6	5.8	-5.2	13.8
New Brunswick	44.1	37.5	43.3	-0.8	5.8	-1.8	15.5
Quebec	384.1	301.8	375.8	-8.3	74.0	-2.2	24.5
Ontario	449.6	382.1	445.6	-4.0	63.5	-0.9	16.6
Manitoba	31.3	28.2	27.7	-3.6	-0.5	-11.5	-1.8
Saskatchewan	25.6	26.9	30.9	5.3	4.0	20.7	14.9
Alberta	87.8	82.1	89.0	1.2	6.9	1.4	8.4
British Columbia	170.4	150.1	205.0	34.6	54.9	20.3	36.6

Source: Labour Force Survey, seasonally adjusted

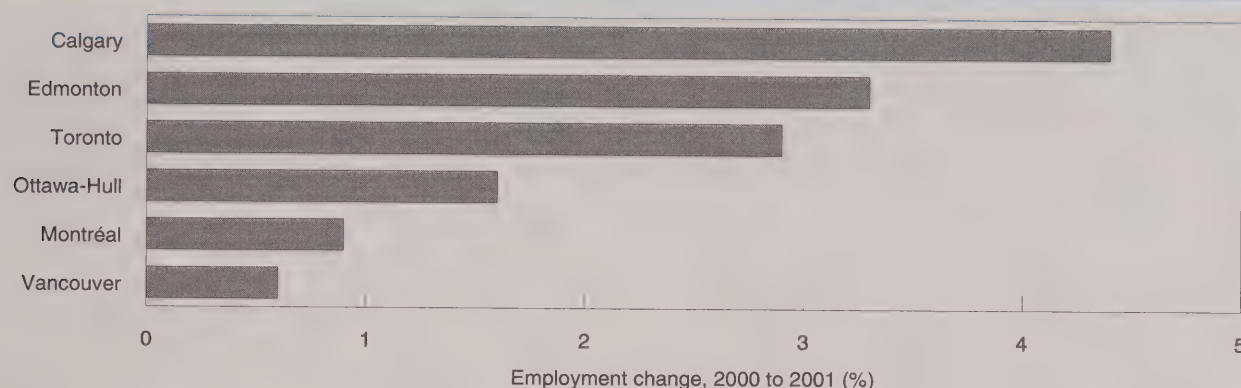
## Unemployment rates increased in most provinces in 2001.



Source: Labour Force Survey, seasonally adjusted



Of Canada's six largest cities, the average level of employment increased most in Calgary and Edmonton.



Source: Labour Force Survey, annual averages

	Annual average			Change			
	1997	2000	2001	1997 to 2001	2000 to 2001	1997 to 2001	2000 to 2001
	'000	'000	'000	'000	'000	%	%
<b>Canada</b>	<b>13,774.4</b>	<b>14,909.7</b>	<b>15,076.8</b>	<b>1,302.40</b>	<b>167.10</b>	<b>9.5</b>	<b>1.1</b>
St. John's	78.0	84.3	85.9	7.9	1.6	10.1	1.9
Halifax	165.6	184.0	183.8	18.2	-0.2	11.0	-0.1
Saint John	54.5	61.0	58.1	3.6	-2.9	6.6	-4.8
Chicoutimi-Jonquière	62.9	67.4	70.1	7.2	2.7	11.4	4.0
Québec	307.1	326.6	339.0	31.9	12.4	10.4	3.8
Trois-Rivières	59.3	62.1	65.5	6.2	3.4	10.5	5.5
Sherbrooke	65.0	73.1	74.4	9.4	1.3	14.5	1.8
Montréal	1,557.7	1,689.9	1,705.7	148.0	15.8	9.5	0.9
Ottawa-Hull	504.4	567.0	576.1	71.7	9.1	14.2	1.6
Sudbury	72.8	76.0	72.5	-0.3	-3.5	-0.4	-4.6
Oshawa	136.9	148.6	154.3	17.4	5.7	12.7	3.8
Toronto	2,238.0	2,499.8	2,571.8	333.8	72.0	14.9	2.9
Hamilton	312.0	345.3	348.3	36.3	3.0	11.6	0.9
St. Catharines-Niagara	169.7	193.2	190.0	20.3	-3.2	12.0	-1.7
London	202.1	218.1	216.0	13.9	-2.1	6.9	-1.0
Windsor	136.1	154.2	154.6	18.5	0.4	13.6	0.3
Kitchener	201.6	223.5	225.7	24.1	2.2	12.0	1.0
Thunder Bay	59.7	61.2	62.1	2.4	0.9	4.0	1.5
Winnipeg	332.8	351.9	358.2	25.4	6.3	7.6	1.8
Regina	99.0	104.4	105.2	6.2	0.8	6.3	0.8
Saskatoon	110.9	116.7	115.6	4.7	-1.1	4.2	-0.9
Calgary	473.5	545.6	569.5	96.0	23.9	20.3	4.4
Edmonton	466.1	488.9	504.8	38.7	15.9	8.3	3.3
Vancouver	971.3	1,044.5	1,051.1	79.8	6.6	8.2	0.6
Victoria	149.8	153.6	148.9	-0.9	-4.7	-0.6	-3.1

Source: Labour Force Survey

## Workers in primary industries and occupations worked the longest hours in 2001.

	Employed	Usual hours, main job							Total ('000)	Avg.
		1-14	15-29	30-34	35-39	40	41-49	50+		
		'000								
Total	15,076.8	845.4	1,886.2	1,007.2	3,199.6	5,733.9	956.2	1,448.2	552,310.8	36.6
Industry										
Agriculture	328.6	24.6	33.7	20.5	14.0	74.3	27.0	134.5	14,981.2	45.6
Forestry, fishing, mining, oil and gas	293.1	4.3	9.6	6.7	25.2	139.2	33.4	74.7	13,284.9	45.3
Utilities	123.0	-	2.2	7.0	46.3	60.8	3.6	2.4	4,703.4	38.2
Construction	843.3	19.7	43.4	41.5	77.9	419.9	91.4	149.4	34,488.2	40.9
Manufacturing	2,274.5	26.3	57.8	50.2	291.6	1,520.1	214.5	114.0	90,427.6	39.8
Trade	2,383.6	186.3	457.4	178.5	326.4	881.1	152.8	201.0	82,315.5	34.5
Transportation and warehousing	773.2	19.0	69.3	33.5	93.2	341.6	57.8	158.8	31,862.5	41.2
Finance, insurance, real estate and leasing	874.5	33.1	93.2	53.1	346.2	242.7	35.6	70.6	31,925.1	36.5
Professional, scientific and technical services	987.0	47.5	87.4	47.2	238.0	382.3	58.9	125.6	37,440.1	37.9
Management, administrative and other support	555.3	45.6	88.1	49.1	93.2	206.3	33.3	39.7	19,115.9	34.4
Educational services	966.2	95.2	159.0	102.6	285.8	243.6	30.4	49.6	31,441.3	32.5
Health care and social assistance	1,542.1	79.7	301.8	170.0	534.1	312.1	49.8	94.6	52,580.3	34.1
Information, culture and recreation	707.2	67.6	93.6	48.0	186.4	230.0	28.5	53.1	24,301.3	34.4
Accommodation and food services	976.0	119.3	259.5	116.4	109.6	242.6	45.1	83.4	30,862.7	31.6
Other services	682.7	55.2	94.0	54.7	94.1	241.9	59.3	83.4	24,612.0	36.1
Public administration	766.4	21.2	36.3	28.0	437.4	195.3	34.9	13.3	27,968.7	36.5
Occupation										
Management	1,350.6	22.3	54.7	45.8	271.4	518.7	113.9	323.7	57,918.2	42.9
Business, finance and administrative	2,721.1	141.8	313.2	170.8	998.3	916.8	94.1	86.2	95,238.9	35.0
Natural and applied sciences	1,001.8	12.3	31.9	29.2	342.6	468.7	52.4	64.8	39,102.9	39.0
Health	797.9	30.8	171.1	96.0	257.2	161.4	31.1	50.2	27,394.3	34.3
Social science, education, government service and religion	1,029.8	64.6	142.6	86.4	335.5	273.6	41.7	85.5	36,052.0	35.0
Art, culture, recreation and sport	431.1	62.2	71.1	36.9	91.7	111.9	15.1	42.2	13,966.1	32.4
Sales and service	3,843.1	424.3	916.3	404.4	567.5	1,119.2	196.3	215.2	121,618.3	31.6
Trades, transport and equipment operators	2,144.3	40.0	106.9	79.0	198.3	1,152.1	233.0	334.9	88,206.1	41.1
Occupations unique to primary industry	541.2	31.5	43.5	27.2	26.8	161.7	51.7	198.6	24,658.7	45.6
Processing, manufacturing and utilities	1,215.9	15.6	34.8	31.5	110.4	849.9	126.9	46.8	48,155.1	39.6

Source: Labour Force Survey, annual averages



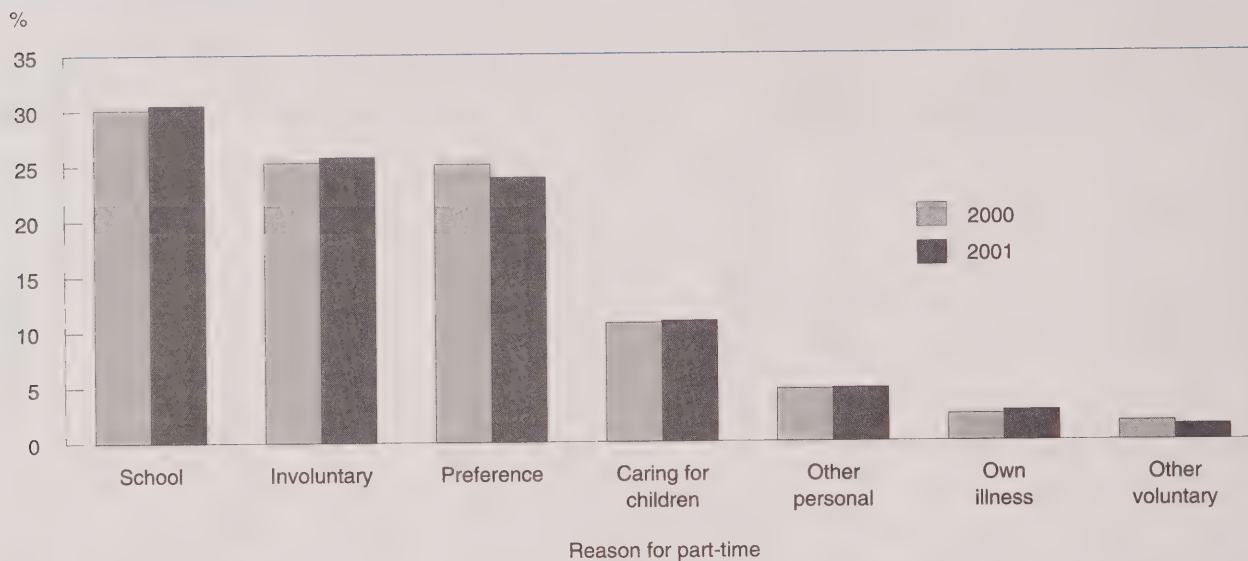
**While overtime workers in the goods sector tended to be paid for their extra hours, most workers in the service sector were not paid for any extra hours.**

	Employees at work		Proportion of workers putting in overtime					
			2001			Change, 2000 to 2001		
	Total	Overtime	Total	Paid	Unpaid	Total	Paid	Unpaid
	'000			%		%-point		
<b>Total</b>	<b>11,766.3</b>	<b>2,417.3</b>	<b>20.5</b>	<b>9.8</b>	<b>11.4</b>	<b>0.7</b>	<b>0.0</b>	<b>0.7</b>
<b>Industry</b>								
Agriculture	113.2	13.7	12.1	6.5	5.2	2.5	0.9	1.5
Forestry, fishing, mining, oil and gas	224.3	64.7	28.8	19.2	10.7	1.2	0.3	1.2
Utilities	112.6	29.9	26.6	17.0	10.9	-0.5	0.0	-0.5
Construction	537.4	109.4	20.4	15.2	5.9	0.6	-0.1	0.7
Manufacturing	2,015.8	507.8	25.2	17.5	8.3	-0.2	-0.9	0.8
Trade	1,949.6	290.0	14.9	6.8	8.5	0.6	0.0	0.7
Transportation and warehousing	580.7	123.2	21.2	13.9	7.9	1.3	0.2	1.1
Finance, insurance, real estate and leasing	689.9	154.9	22.5	6.1	17.1	1.4	0.2	1.3
Professional, scientific and technical services	624.6	169.7	27.2	8.7	19.4	2.1	0.4	1.9
Management, administrative and other support	392.0	54.6	13.9	7.9	6.6	-0.3	-1.0	0.8
Educational services	787.5	272.8	34.6	2.6	32.5	0.9	0.2	0.8
Health care and social assistance	1,213.8	200.9	16.6	7.9	9.6	0.8	0.6	0.4
Information, culture and recreation	569.2	111.4	19.6	8.3	12.0	0.6	0.2	0.5
Accommodation and food services	829.7	78.9	9.5	5.4	4.5	0.2	0.1	0.1
Other services	428.2	72.8	17.0	7.6	9.9	1.3	0.7	0.6
Public administration	697.7	162.6	23.3	9.8	14.9	1.8	1.2	0.9
<b>Occupation</b>								
Management	804.8	308.6	38.3	4.2	35.0	2.1	-0.1	2.4
Business, finance and administrative	2,306.8	413.3	17.9	7.3	11.2	0.9	0.0	1.0
Natural and applied sciences	826.4	241.2	29.2	12.3	18.2	1.3	-0.4	1.7
Health	621.0	112.1	18.1	11.0	8.3	2.0	1.2	1.0
Social science, education, government service and religion	817.8	301.1	36.8	3.5	34.1	1.1	0.4	0.9
Art, culture, recreation and sport	263.4	56.0	21.3	8.2	13.9	1.6	0.9	1.0
Sales and service	3,182.2	361.0	11.3	5.9	5.9	0.7	0.1	0.7
Trades, transport and equipment operators	1,620.8	353.3	21.8	19.0	3.5	0.3	0.0	0.4
Occupations unique to primary industry	245.7	41.6	16.9	12.6	5.0	2.0	1.3	1.8
Processing, manufacturing and utilities	1,077.4	229.2	21.3	19.3	2.5	-0.3	-0.6	0.5

Source: Labour Force Survey, annual averages

Note: Some workers do both paid and unpaid overtime in the same week.

In 2001, the percentage of workers who involuntarily worked part time increased slightly, as did that of people who worked "short" hours because they were going to school.



Source: Labour Force Survey, annual averages

		Voluntary part-time						Involuntary part-time		
		Part-time total	Own illness	Caring for children	Other personal	School	Preference	Other	Total	Looked for full-time
2001										
	'000					%				
Total	2,731.6	2.7	10.9	4.8	30.5	23.9	1.4	25.8	7.5	18.3
Youths (15 - 24)	1,017.1	0.3	1.2	0.8	74.2	5.0	0.5	17.8	6.3	11.6
Men	441.0	0.4	0.0	0.5	77.1	4.9	0.4	16.6	6.3	10.3
Women	576.1	0.3	2.1	1.1	72.1	5.2	0.6	18.7	6.2	12.5
Adults 25 +	1,714.5	4.1	16.7	7.2	4.6	35.0	1.9	30.5	8.2	22.3
Men	403.0	5.7	1.5	2.7	8.2	38.3	3.0	40.6	12.7	27.9
Women	1,311.5	3.6	21.4	8.5	3.5	34.0	1.6	27.4	6.9	20.5

Source: Labour Force Survey, annual averages



**Female employees earned 81 cents for every dollar earned by men in 2001, unchanged from the year before.**

	Hourly wage in 2001				Change from 2000			
	Both sexes	Men	Women	Ratio	Both sexes	Men	Women	Ratio
		\$				\$		
15 +	17.18	18.95	15.29	0.81	0.54	0.59	0.51	0.00
15 - 24	9.90	10.43	9.34	0.90	0.31	0.32	0.29	0.00
25 - 54	18.71	20.68	16.63	0.80	0.59	0.66	0.55	0.00
55 +	18.72	21.05	15.92	0.76	0.58	0.54	0.62	0.01

Source: Labour Force Survey, annual averages

**By industry, employees in utilities made the most. Among all the major occupation groups, managers remained the best paid.**

	Hourly wage				Weekly wage			
	2000	2001	Change		2000	2001	Change	
		\$		%		\$		%
<b>Total</b>	<b>16.64</b>	<b>17.18</b>	<b>0.54</b>	<b>3.2</b>	<b>614.87</b>	<b>634.30</b>	<b>19.43</b>	<b>3.2</b>
<b>Industry</b>								
Agriculture	10.43	11.01	0.58	5.6	408.26	421.85	13.59	3.3
Forestry, fishing, mining, oil and gas	20.75	21.32	0.57	2.7	892.02	927.27	35.25	4.0
Utilities	24.41	25.23	0.82	3.4	931.46	960.97	29.51	3.2
Construction	17.78	18.57	0.79	4.4	720.59	753.74	33.15	4.6
Manufacturing	17.54	18.02	0.48	2.7	699.19	717.66	18.47	2.6
Trade	12.81	13.19	0.38	3.0	458.67	471.55	12.88	2.8
Transportation and warehousing	17.33	17.75	0.42	2.4	691.00	708.15	17.15	2.5
Finance, insurance, real estate and leasing	18.18	19.01	0.83	4.6	673.88	703.88	30.00	4.5
Professional, scientific and technical services	20.87	21.70	0.83	4.0	805.64	834.76	29.12	3.6
Management, administrative and other support	12.29	13.02	0.73	5.9	443.02	470.00	26.98	6.1
Educational services	21.54	21.93	0.39	1.8	732.37	733.29	0.92	0.1
Health care and social assistance	17.13	17.76	0.63	3.7	567.03	593.40	26.37	4.7
Information, culture and recreation	16.84	17.65	0.81	4.8	608.34	639.98	31.64	5.2
Accommodation and food services	9.41	9.74	0.33	3.5	294.51	303.52	9.01	3.1
Other services	14.02	14.36	0.34	2.4	514.26	525.59	11.33	2.2
Public administration	21.30	22.08	0.78	3.7	787.48	816.39	28.91	3.7
<b>Occupation</b>								
Management	24.86	26.51	1.65	6.6	999.46	1072.05	72.59	7.3
Business, finance and administrative	15.96	16.48	0.52	3.3	573.56	591.53	17.97	3.1
Natural and applied sciences	23.52	24.82	1.30	5.5	910.63	962.40	51.77	5.7
Health	18.98	19.77	0.79	4.2	626.73	661.34	34.61	5.5
Social science, education, government service and religion	22.76	23.34	0.58	2.5	797.11	807.08	9.97	1.3
Art, culture, recreation and sport	16.76	16.80	0.04	0.2	569.98	568.22	-1.76	-0.3
Sales and service	11.37	11.80	0.43	3.8	376.27	391.98	15.71	4.2
Trades, transport and equipment operators	16.96	17.51	0.55	3.2	687.69	710.00	22.31	3.2
Occupations unique to primary industry	13.70	14.37	0.67	4.9	582.42	617.71	35.29	6.1
Processing, manufacturing and utilities	14.94	15.43	0.49	3.3	594.57	613.64	19.07	3.2

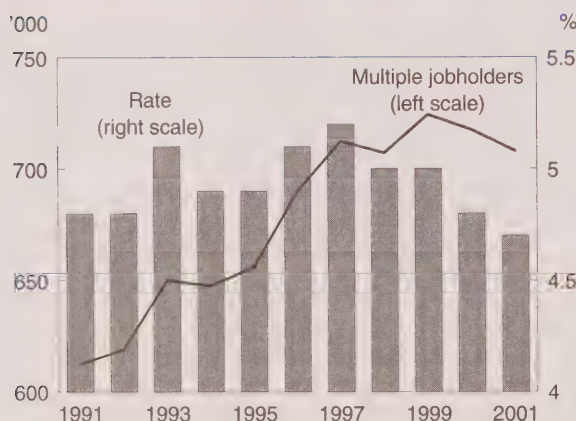
Source: Labour Force Survey, annual averages

The largest drop in the ratio of unionized employees to all employees was in forestry, fishing, mining, oil and gas, and utilities.

	2001		Change, 2000 to 2001			
	Total employees	Employees covered by union contract	Total employees	Employees covered by union contract		
	'000	%	'000	%		
<b>Total</b>	<b>12,767.6</b>	<b>4,109.1</b>	<b>32.2</b>	<b>279.3</b>	<b>84.4</b>	<b>0.0</b>
Public sector	2,821.8	2,120.0	75.1	29.4	55.5	1.2
Private sector	9,945.8	1,989.1	20.0	249.9	28.9	-0.2
Agriculture	119.5	5.0	4.2	-4.1	0.7	0.7
Forestry, fishing, mining, oil and gas	245.6	66.5	27.1	11.3	-4.3	-3.1
Utilities	122.7	85.4	69.6	6.4	2.2	-1.9
Construction	571.3	194.0	34.0	33.0	19.1	1.5
Manufacturing	2,173.8	715.9	32.9	-13.7	-30.7	-1.2
Trade	2,079.8	303.6	14.6	79.0	8.3	-0.2
Transportation and warehousing	637.7	280.9	44.0	-0.5	3.3	0.6
Finance, insurance, real estate and leasing	748.8	81.4	10.9	12.8	0.7	-0.1
Professional, scientific and technical services	663.3	37.3	5.6	44.1	4.1	0.3
Management, administrative and other support	415.7	59.8	14.4	29.9	10.3	1.6
Educational services	920.2	676.2	73.5	-9.2	7.4	1.5
Health care and social assistance	1,359.3	770.3	56.7	32.5	43.7	1.9
Information, culture and recreation	608.6	170.6	28.0	39.1	13.0	0.4
Accommodation and food services	877.5	68.4	7.8	14.9	-5.2	-0.7
Other services	457.3	46.5	10.2	-0.9	1.0	0.2
Public administration	766.4	547.4	71.4	4.7	10.9	1.0

Source: Labour Force Survey, annual averages

Over the 1990s, the number of "moonlighters" increased; however, their share of total employment remained around 5%.



Source: Labour Force Survey, annual averages

About 13% of all employees worked on a temporary basis. For youths, the proportion was twice as high and has increased recently.

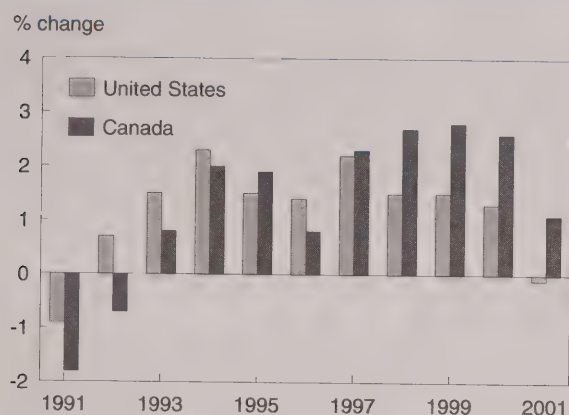
Temporary employees (%)



Source: Labour Force Survey, annual averages

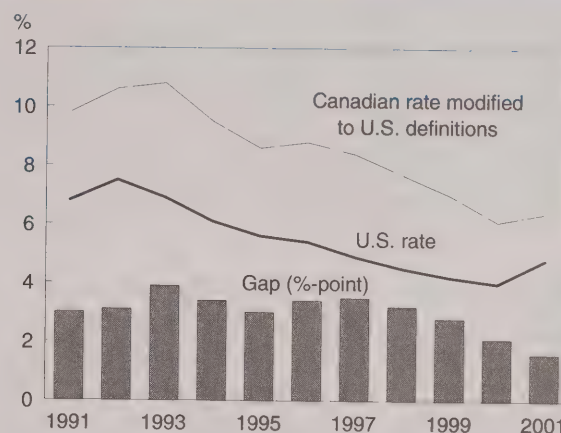


**For five years in a row, employment grew at a faster pace in Canada than in the United States.**



Sources: Labour Force Survey, U.S. Current Population Survey, annual averages

**Even after the unemployment rates are harmonized, the gap between the two countries remains.**



Sources: Labour Force Survey, U.S. Current Population Survey, annual averages

Note: For more information on modifications to the Canadian unemployment rate, see Labour Force Update (Statistics Canada, Catalogue no. 71-005-XPB) Autumn 1998.

### Supplementary measures of unemployment and percentage-point change from 1997 to 2001

	Annual averages			Change	
	1997	2000	2001	1997 to 2001	2000 to 2001
	%			% -point	
R1 – Only those unemployed one year (52 weeks) or more	1.4	0.7	0.6	-0.8	-0.1
R2 – Only those unemployed 3 months (12 weeks) or more	3.8	2.3	2.2	-1.6	-0.1
R3 – Made comparable to the U.S. definition	8.4	6.1	6.4	-2.0	0.3
<b>R4 – Official rate</b>	<b>9.1</b>	<b>6.8</b>	<b>7.2</b>	<b>-1.9</b>	<b>0.4</b>
R5 – R4 plus discouraged searchers	9.7	7.1	7.4	-2.3	0.3
R6 – R4 plus those waiting for recall or replies and long-term future starts	9.8	7.5	7.8	-2.0	0.3
R7 – A measure of both unemployment and underemployment (involuntary part-time) expressed in full-time equivalents for recall, replies and long-term future starts	12.3	9.1	9.4	-2.9	0.3
R8 – R4 plus discouraged searchers, those waiting for recall or replies, long-term future starts and the underused portion of involuntary part-timers	13.2	9.9	10.2	-3.0	0.3

Source: Labour Force Survey

These charts and tables are part of *The labour market: Year-end review*, in this issue. For more information, contact Geoff Bowlby, Labour Statistics Division, at (613) 951-3325 or bowlgeo@statcan.ca.



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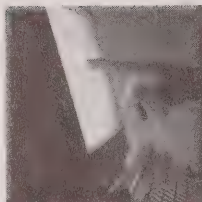
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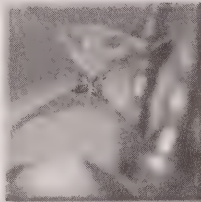
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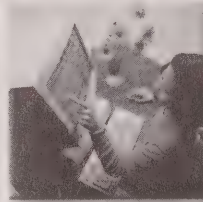
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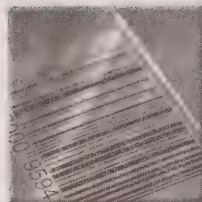
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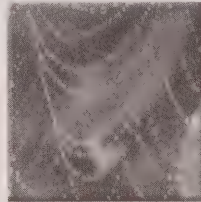
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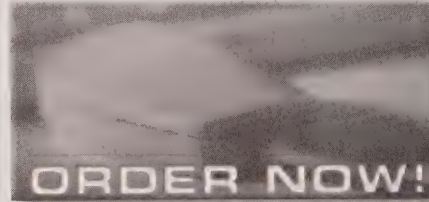
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*Some of the topics in upcoming issues*

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## ■ Barriers to training

What are the most important barriers to job-related training? Do some groups experience particular obstacles? Has access to job-related training improved over time? These questions are addressed via the 1998 and 1994 Adult Education and Training Surveys.

## ■ The ICT sector in 2001

Information and communication technology industries have become increasingly important to the economy. This article examines developments in 2001.

## ■ Employment and retirement after 50

The decision to retire depends on many factors, which vary with time and circumstance. This report examines job changes within cohorts of older workers over a 20-year period.

## ■ Working after 65

Many workers continue to work long after their 65<sup>th</sup> birthday. Are some industries or occupations more likely to retain older workers?

## ■ Duration of multiple jobholding

About 5% of workers hold two or more jobs at the same time. Is this a temporary situation or a longer-term career decision?

## ■ Adjusting incomes for family size and characteristics

While two cannot live as cheaply as one, they can certainly economize on some things. To compare the economic well-being of families, their incomes must be adjusted to reflect these economies of scale.

## ■ Pension coverage of immigrants

How well do new arrivals integrate into the labour market? The extent to which they are covered by employer-sponsored pension plans provides some answers.

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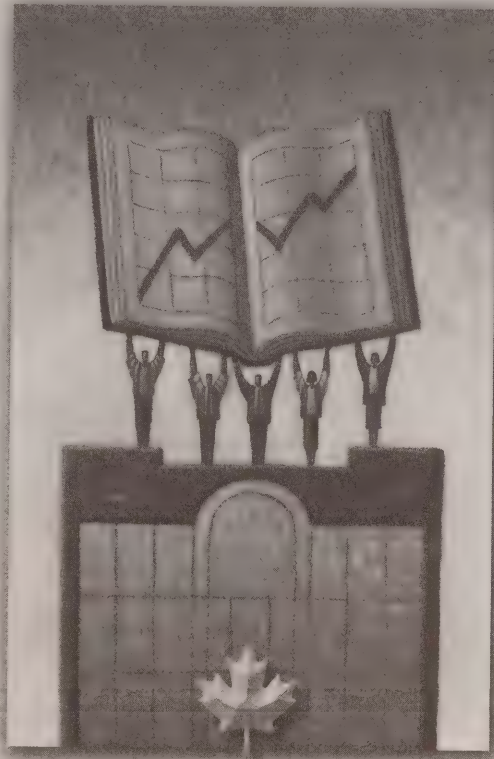
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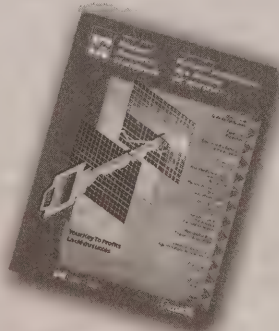
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*Job vacancy rates*

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### 9 High-tech boom and bust

*Geoff Bowlby and Stéphanie Langlois*

Between 1997 and 2000, the rate of growth in the information and communication technology (ICT) sector was much greater than that of the economy as a whole. However, as demand for ICT products dropped in 2001, a number of large corporations announced massive layoffs and halted the hiring of new staff. The full degree of the employment decline cannot be measured using the two main Statistics Canada employment surveys: the Labour Force Survey and the Survey of Employment, Payroll and Hours. However, it is possible to measure employment in the closely related computer and telecommunications (CT) sector. This article introduces this new sector—a grouping of industries for which Statistics Canada has more data than it does for the standard ICT sector—and documents the decline in CT employment and hours worked.

### 17 Duration of multiple jobholding

*Katherine Marshall*

Multiple jobholders are a relatively small but important element of the labour market. Knowing the number of secondary jobs held by workers is necessary to calculate the total number of jobs in the economy. With the relatively recent availability of longitudinal data, another facet of multiple jobholding can now be examined—the length of time people work at more than one job. This information provides insight into the stability and dynamics of multiple jobholding.

### 25 Barriers to job-related training

*Deborah Sussman*

This article examines barriers to job-related training, the groups that experience these obstacles and whether access to training has improved over time.

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## 33 Seniors at work

*Doreen Duchesne*

This article focuses on the occupations of seniors who continue to work beyond 65. A number of demographic and other job characteristics are also examined including age, sex, education, self-employment versus paid work, full-time versus part-time employment, and province or territory of residence.

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# Forum

## *From the Managing Editor*

### **In Memoriam**

*Professor Noah M. Meltz, Chair of the Advisory Committee on Labour Statistics*

The field of labour statistics in Canada lost one of its most committed and articulate supporters on January 29, 2002 when Noah Meltz died after an extended illness.

Professor Meltz was an accomplished scholar, and an advisor on human resource policy to the Ontario government and to several federal government departments and agencies. He also advised the Israeli government on its entire labour statistics program.

At the time of his death, Professor Meltz was the chair of Statistics Canada's Advisory Committee on Labour Statistics—a position he had held for 14 years. For a number of years before this, he had been a member of the committee.

As a believer in information democracy, Professor Meltz was a strong proponent of the creation of *Perspectives*, which has made labour statistics more accessible, both to its readership, and indirectly

through the news media. He frequently urged the Advisory Committee to remain involved in the content and development of *Perspectives*, and never let an opportunity slip in any of his many roles to promote the publication.

As a teacher, he taught the importance of thoroughly understanding data, as well as knowing and applying their strengths and limitations. He was especially supportive of *Perspectives* articles that led by example in these practices.

Some articles in *Perspectives* have proven to be of lasting value and continue to be cited long after their publication. Similarly, Noah Meltz's influence on *Perspectives* will continue to be felt for many years to come.

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### **Perspectives**

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**We welcome your views** on articles and other items that have appeared in *Perspectives*. Additional insights on the data are also welcome, but to be considered for publication, communications should be factual and analytical. We encourage readers to inform us about their current research projects, new publications, data sources, and upcoming events relating to labour and income.

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# Highlights

## *In this issue*

### ■ High-tech boom and bust ... p. 9

- Following very strong growth of 49% between 1996 and 2000, computer and telecommunications (CT) employment tumbled from its peak in March 2001. By the last quarter of the year, 608,000 people were employed in CT, down 5% from a year earlier. Had it not been for a large drop in CT manufacturing employment (-23%), CT employment would have managed to show a small increase over 2001.
- While CT employment fell 35,000 in 2001, the non-CT sectors of the economy registered a net gain of 101,000 jobs from the last quarter of 2000 to the same quarter a year later. Thus, even though the CT sector accounted for only a small proportion of total employment (4%), it wiped out over a third of the net gains registered by other sectors of the economy.
- The high-tech layoffs and hiring freezes hit some communities more than others in 2001. Of the four centres with the most CT employment (Toronto, Montréal, Ottawa-Gatineau and Vancouver), Ottawa-Gatineau was the most affected—down 15% in the fourth quarter from a year earlier, much more than Toronto (-9%), Vancouver (-6%), or Montréal (-1%).
- Women were most affected by the high-tech woes in 2001. For them, the decline in CT employment (-20,000) was much greater than that for men (-14,000), even though almost two-thirds of all CT workers were men.
- During the 1997 to 2000 period, employers raced to hire highly qualified CT professionals, doubling the number of university-educated workers. While

the highly educated reaped the benefits of the high-tech boom, they also suffered more than those with less formal education during the bust of 2001.

### ■ Duration of multiple jobholding ... p. 17

- Between 1993 and 1999, approximately 1 in 10 employed persons held two or more jobs at the same time (for a period of at least 15 days) at least once during the course of a year.
- Of the 1.3 million multiple jobholders in 1996, 40% ended this work arrangement within 6 months, 17% between 7 and 12 months, 32% between 13 and 48 months, while 12% continued past four years. The median duration of ended multiple jobholding spells was 8 months.
- Short- (6 months or less) and long-term (three years or more) multiple jobholders differed considerably. Long-term were older (40 versus 27), more likely to be married (75% versus 46%), more likely to be self-employed in at least one of their jobs (62% versus 23%), and less likely to be attending school.
- Although long-term multiple jobholders had the highest annual earnings of all other groups (including single jobholders), they also had the longest work schedule—48 hours per week compared with 38 hours for single jobholders, and 31 hours for short-term multiple jobholders. On an hourly basis, average earnings were highest for single jobholders (\$13.10), second highest for long-term multiple jobholders (\$11.45), and lowest for short-term multiple jobholders (\$7.20).

## ■ Barriers to job-related training

... p. 25

- Not everyone who wants or needs job-related training has access to it. In 1997, 1.5 million people (or 7% of Canadians aged 17 and over, excluding full-time students) reported not taking some needed job-related training.
- People between the ages of 35 and 44, those with preschool children, and university graduates had above average rates of unmet job-related training needs, as did full-time workers, and workers in service-producing industries—particularly public administration; finance, insurance and real estate; and education, health and welfare. Above average rates were also found in professional and managerial occupations—particularly natural sciences, engineering and mathematics.
- Being too busy at work was the barrier cited most often by those who faced barriers to job-related training in 1997 (42%), followed closely by expense (40%).
- Being too busy at work was particularly important for people aged 35 to 54; university graduates; and people working in the finance, insurance and real estate industries; in agriculture and other primary industries; and in trade. Those in primary occupations, and in professional and managerial occupations, especially managers and administrators, also reported this barrier more frequently.
- Expense was relatively significant for women; people under 35; those employed in business, commercial and personal service industries; as well as those in service, and medicine and health occupations.
- Lack of child care and other family responsibilities presented a problem for almost one in five people who faced barriers to job-related training. These barriers were particularly significant for people aged 25 to 44 and women—the groups most often responsible for these tasks.

## ■ Seniors at work

... p. 33

- Over one-quarter million (255,200) Canadians aged 65 and over reported being employed the week before the 1996 Census. Although most working seniors were aged 65 to 69 (59%), a substantial proportion were 70 to 74 (25%), or 75 and over (16%).
- Over two-thirds of employed seniors were men, even though women accounted for the majority (57%) of the population this age. This may reflect the much lower labour force participation of these women when they were younger and social expectations were different. As the baby boom generation continues to age, it is likely that the participation rate of women aged 65 and over will move closer to that of men.
- Highly educated Canadians are much more likely than those with less schooling to continue working beyond the expected age of retirement. In 1996, 1 in 5 seniors with a university degree was employed, compared with less than 1 in 20 seniors with an elementary school education only.
- Working seniors were almost four times more likely to be self-employed than younger workers. In 1996, 46% of employed persons 65 and over (118,400) were self-employed, compared with only 13% of workers aged 15 to 64. Most self-employed seniors (57%) were working owners of unincorporated businesses without paid help.
- Half of the senior workforce could be found in one of 20 occupations. Farmers and farm managers, combined with general farm workers, accounted for 21% of all senior workers. Retail salespersons and managers, sales representatives in wholesale trade (non-technical), and real estate agents made up an additional 9%.
- Some occupations are notable for having very high concentrations of seniors. For example, 21% of judges were aged 65 and over, as were 12% of legislators. Seniors were also very visible in farming and farm management occupations (20% of the workforce aged 15 and over), hunting and trapping (18%), and religious occupations (12%).



- At the national level, 7.8% of all seniors had jobs. The employment rate of Canadians aged 65 and over varied widely by province. For example, 15.8% of seniors living in Saskatchewan were employed, reflecting the importance of agriculture in this province. In contrast, only 2.4% of seniors in Newfoundland and Labrador had a job, which may be related to this area's persistently high unemployment rates.

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*Economic Overview of Farm Incomes—All Farms*

*A Statistical Profile of Persons Working in Justice-related Professions in Canada, 1996*

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Remote data access

## ■ What's new?

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### ■ Just released

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# High-tech boom and bust

Geoff Bowlby and Stéphanie Langlois

OVER THE LAST FEW years, the information and communication technology (ICT) sector has become increasingly important. In early 1997, the sector contributed \$33.8 billion to the domestic economy, but by December 2000 this amount had increased a whopping 84% to a peak of \$62.3 billion. The rate of growth during these four years was much greater than that of the economy as a whole (Chart A). As a result, by the end of 2000, the ICT sector made up 7% of all economic

activity in the country, up sharply from 4% four years earlier.

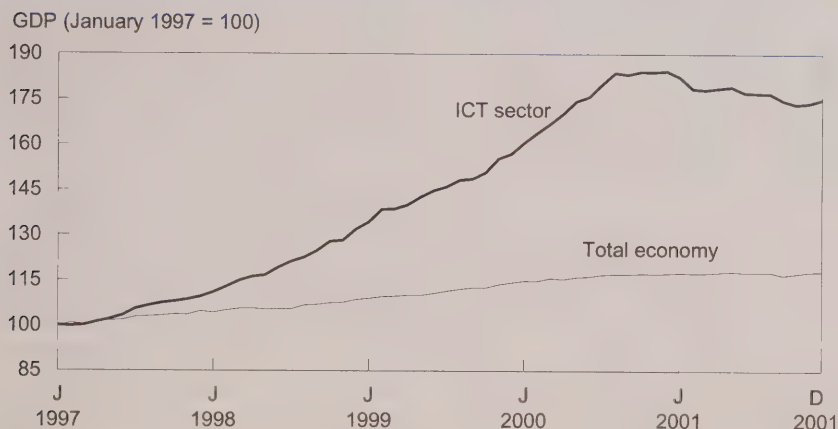
However, the value of the ICT sector plummeted over most of 2001, entirely on the manufacturing side. (ICT services continued to rise in 2001, albeit at a reduced pace from the previous year.) By October, ICT gross domestic product was at \$58.0 billion, a drop of 7%. In the last two months of the year, this figure edged up, ending the year at \$58.8 billion, still down 6% for the year (Chart B).

With less demand for their products, a number of large corporations in the ICT sector announced massive layoffs in 2001 and halted the hiring of new staff. As a result, employment in this sector declined dramatically.

The full extent of the decline cannot be measured using the two main Statistics Canada employment surveys: the Labour Force Survey (LFS) and the Survey of Employment, Payroll and Hours (SEPH). Each survey has a key weakness: the LFS cannot produce sufficiently detailed industry data, and SEPH excludes the self-employed—who make up about 1 in 10 ICT workers. However, it is possible to measure employment in the closely related computer and telecommunications (CT) sector. The CT sector is probably the core of what many Canadians consider the 'high-tech' sector. It includes the manufacture of computers, communication equipment, and semi-conductors. It also includes companies that design and maintain computer systems, as well as telecommunications firms (see *The CT sector*).

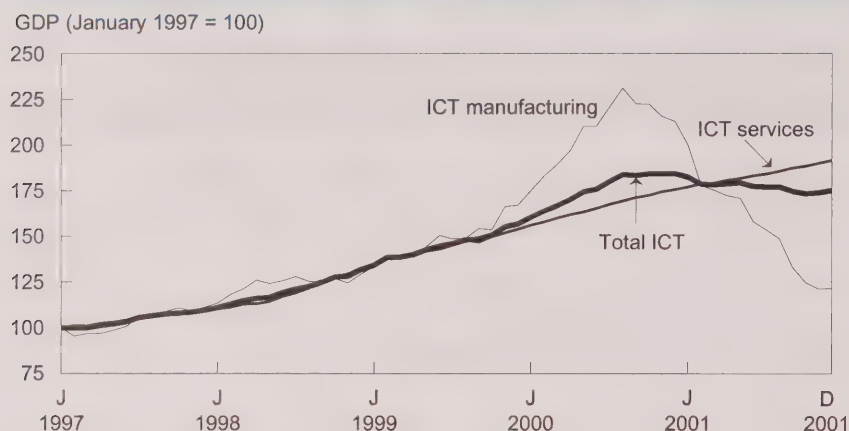
The goal of this article is two-fold: first, to document the size of the decline in CT employment and hours worked in Canada and selected large urban centres according to the Labour Force Survey. This gives an idea of the CT sector's influence on overall employment in 2001. Second, on

**Chart A: The ICT sector has become increasingly important to the economy.**



Source: National Accounts, gross domestic product, seasonally adjusted

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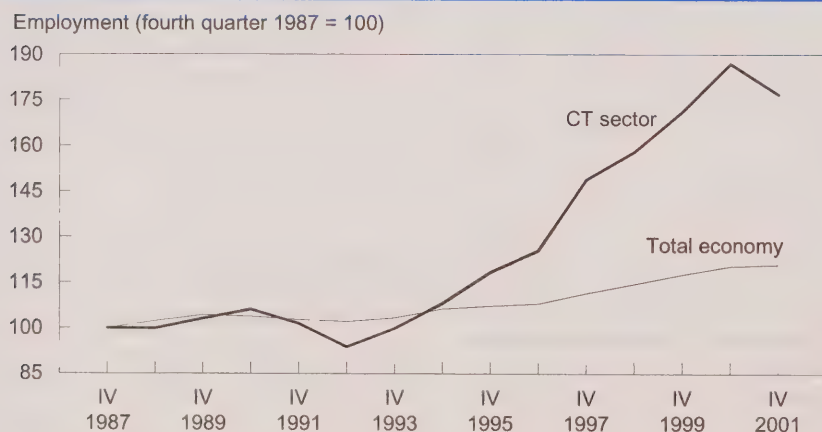
**Chart B: Declines in manufacturing caused a drop in GDP within the ICT sector in 2001.**

Source: National Accounts, gross domestic product, seasonally adjusted

a more technical note, the article introduces this new sector—a grouping of industries for which Statistics Canada has more data than it does for the standard ICT sector.

### A heady period for Canada's CT sector

The CT sector employs a lot of people—632,000 on average in 2001. These people worked some 23 million hours, accounting for 4.2% of employment and 4.6% of total hours worked. The majority of employment and hours was found in computer systems design and related services (about 40%) and telecommunications (around 25%).

**Chart C: CT employment grew faster than overall employment.**

Source: Labour Force Survey

Job growth was very strong, to say the least (Chart C). From the fourth quarter of 1996 to the fourth quarter of 2000, CT employment increased 211,000 (49%), and the number of hours worked in this sector grew by 8 million (51%). These rates of growth were three to four times greater than for the economy as a whole—11% for employment and 15% for the number of hours worked.

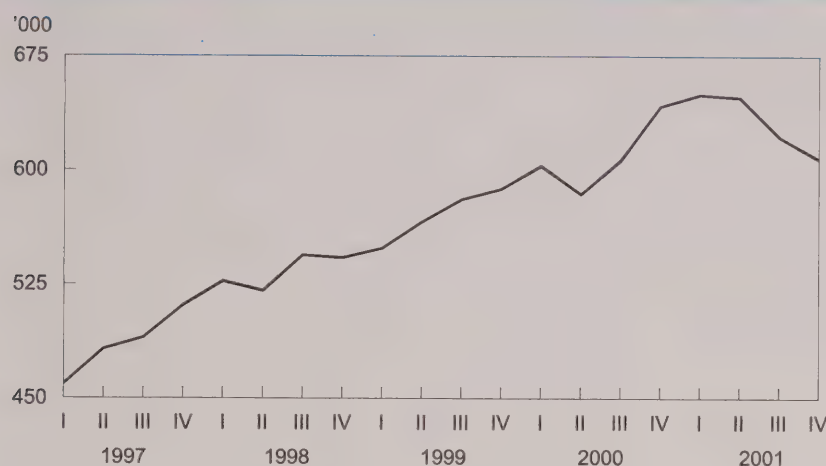
### But the bubble has burst

Beginning in January 2001, employment growth slowed in a number of sectors of the economy. The CT sector was particularly hard hit (Chart D). From its peak in March to a trough in October 2001, employment tumbled 61,000 or 9%.<sup>1</sup> In communications equipment manufacturing, employment dropped 36% during this period.

Even though CT employment picked up somewhat in November, in the fourth quarter of 2001 it was still far less than a year earlier—down 5% to 608,000 (Table 1). Had it not been for a large drop in CT manufacturing employment (-23%), CT employment would have managed to show a small increase over 2001.

The boom and bust nature of the CT sector is not unique to the current economic slowdown. During the 1990-92 recession, the labour market contracted more sharply in the CT sector than in the economy as a whole. It appears that during economic expansion, employment, and hours worked in the CT sector increase more rapidly than in the total economy; conversely, during economic slowdown, they decrease more rapidly.



**Chart D: CT employment tumbled after peaking in the first quarter of 2001.**

Source: Labour Force Survey

**CT employment swings were more pronounced**

While CT employment fell 35,000 or 5.4%, the non-CT sectors of the economy registered a net gain of 101,000 jobs (0.7%) from the last quarter of 2000 to the same quarter a year later. Thus, even though the CT sector accounted for only a small proportion of total employment, it wiped out over a third of the net employment gains registered by other sectors.

The CT sector also saw its net number of hours worked decline by about 2.1 million (-8.6%) between the last quarters of 2000 and 2001. The non-CT parts of the economy saw a net loss of 12.9 million hours (-2.6%), leaving the

**Table 1: Employment in the CT sector**

	Fourth quarter average					
	1996	1997	1998	1999	2000	2001
'000						
<b>Employment</b>						
CT manufacturing	108.7	135.5	113.3	149.0	168.7	129.4
CT services	322.5	375.8	429.2	438.9	473.4	478.1
CT total	431.2	511.3	542.4	587.9	642.1	607.5
Total economy	13,463.3	13,903.3	14,278.1	14,667.5	15,006.8	15,073.6
CT share (%)	3.2	3.7	3.8	4.0	4.3	4.0
%						
<b>Change from previous fourth quarter</b>						
CT manufacturing	10.9	24.6	-16.4	31.6	13.2	-23.3
CT services	4.5	16.5	14.2	2.3	7.9	1.0
CT total	6.1	18.6	6.1	8.4	9.2	-5.4
Total economy	0.7	3.3	2.7	2.7	2.3	0.4
'000						
<b>Hours worked</b>						
CT manufacturing	4,135.3	5,174.3	4,334.7	5,726.1	6,375.4	4,693.5
CT services	11,777.8	13,826.9	15,470.4	16,182.9	17,633.6	17,239.9
CT total	15,913.1	19,001.2	19,805.1	21,909.0	24,009.0	21,933.3
Total economy	452,940.1	471,504.3	482,266.2	498,463.2	518,922.0	503,914.0
CT share (%)	3.5	4.0	4.1	4.4	4.6	4.4
%						
<b>Change from previous fourth quarter</b>						
CT manufacturing	7.9	25.1	-16.2	32.1	11.3	-26.4
CT services	4.8	17.4	11.9	4.6	9.0	-2.2
CT total	5.6	19.4	4.2	10.6	9.6	-8.6
Total economy	0.0	4.1	2.3	3.4	4.1	-2.9

Source: Labour Force Survey

total hours lost in the economy at 15 million or 2.9%. Even though less than 5% of all hours worked in the economy are in the CT sector, it was responsible for 14% of the decline in hours worked in 2001.

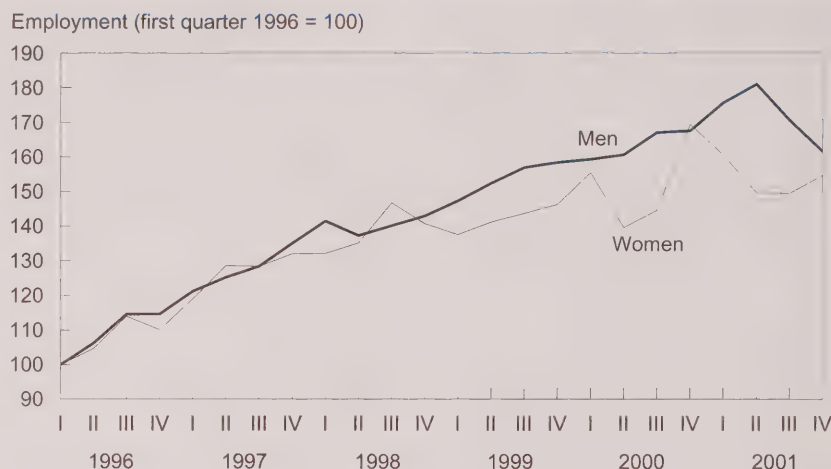
## Workers affected by the drop in CT employment

### Class of worker

During the CT boom of 1997 to 2000, employee growth (52%) was stronger than that of self-employment (28%). However, in 2001, the entire drop occurred among employees (down 42,000 or 7%). In fact, the number of self-employed CT workers rose (up 7,000 or 10%), driving their share from 12% in the last quarter of 2000 to 14% a year later. Almost all self-employment was in services—a rate of 17% in the last quarter of 2001, compared with only 2% in manufacturing (Table 2).

Despite the increase in 2001, the number of self-employed in the last quarter of 2001, at 82,000, was still 9% below the peak in the second quarter of 1999. In the first half of 1999, self-employment rose

**Chart E: Over the last five years, CT employment growth has been stronger for men.**



Source: Labour Force Survey

considerably, probably the result of firms engaging contract workers to correct Y2K problems.

### Men versus women

In the last quarter of 2001, almost two-thirds of all CT workers were men, much higher than the proportion outside the CT sector (53%). Even so, in 2001 the

CT employment decline affected women (-20,000) more than men (-14,000) (Chart E).

### Level of education

As one might expect, CT workers have more formal education than people working outside the sector. For example, at the end of 2001, about 36% of CT workers had a university degree, well above the 19% rate for other workers. During the 1997-2000 period, employers raced to hire highly qualified CT professionals, doubling the number of university-educated workers. However, in 2001, half the job losses in the CT sector were among workers with a university degree (Table 3).

### Communities affected

The Labour Force Survey can also provide data on regional labour markets (although usually, the smaller the area studied, the smaller

**Table 2: CT manufacturing and services employment**

	Manufacturing			Services		
	Fourth quarter 2001	Change from fourth quarter 1996	Change from fourth quarter 2000	Fourth quarter 2001	Change from fourth quarter 1996	Change from fourth quarter 2000
	'000					
<b>Total</b>	<b>129.4</b>	<b>20.7</b>	<b>-39.3</b>	<b>478.1</b>	<b>155.5</b>	<b>4.6</b>
Employees	126.4	20.1	-40.3	399.1	132.5	-1.7
Self-employed	3.0	0.6	1.0	79.0	23.1	6.3

Source: Labour Force Survey



## The CT sector

Before determining trends in employment in the computer and telecommunications (CT) sector, it is important to define this industry grouping. CT is a sub-sector of the information and communication technology (ICT) sector and needs to be understood in this context.

The Science, Innovation and Electronic Information Division at Statistics Canada along with Industry Canada have developed a definition for the ICT sector for each of the industry classification systems used at Statistics Canada: the Standard Industry Classification (SIC) for 1980 (four-digit level) and the North American Industry Classification System (NAICS) for 1997 (five-digit level) (April, 1999). This work was based on a similar exercise conducted by the Organisation for Economic Co-operation and Development (OECD) in developing their own classification system (International Standard Industry Classification) (OECD, 2000). In general, the ICT sector is defined as the combination of manufacturing and service industries that electronically capture, transmit and display data and information (Statistics Canada, 2001).

However, many Statistics Canada surveys do not use the detail needed to define the ICT sector. In the case of the Labour Force Survey, industries are classified at the four-digit NAICS level.

One approach to measuring employment in the ICT sector using the LFS is to sum employment in all four-digit NAICS industries that include at least one five-digit NAICS ICT industry. Doing so includes many non-ICT industries. This would not be a problem if the industries were very small, but detailed industry data from the Survey of Employment, Payroll and Hours (SEPH) show that this approach leads to an unacceptable over-estimation of ICT employment. The same finding would likely be true of any Statistics Canada survey limited by the detail of its industry coding.

The conclusion, therefore, is that surveys that produce industry data only at the four-digit level cannot produce estimates for the ICT sector. They can, however, produce estimates for a core group of ICT industries termed

*computer and telecommunications (CT)*. The CT sector can be seen as a sub-sector or 'core' component of ICT. In fact, according to SEPH, an estimated 88% of ICT employees work in the CT sub-sector—a percentage that has remained relatively unchanged since 1995.

The CT sector comprises 12 NAICS industries:

### Manufacturing

- Commercial and service industry machinery (NAICS 3333)
- Computer and peripheral equipment (3341)
- Communications equipment (3342)
- Audio and video equipment (3343)
- Semiconductor and other electronic components (3344)
- Navigational, measuring, medical and control instruments (3345)

### Services

- Computer and communications equipment and supplies wholesaler-distributors (4173)
- Software publishers (5112)
- Telecommunications (5133)
- Data processing (5142)
- Computer systems design and related services (5415)
- Electronic and precision equipment repair and maintenance (8112).

Not included in CT, but included in ICT, are the following:

- Communication and energy wire and cable manufacturing (33592)
- Office and store machinery and equipment wholesaler-distributors (41791)
- Cable and other program distribution (51322)
- Office machinery and equipment rental and leasing (53242)
- Other information services (51419)

The only NAICS industry included in CT that is not included in ICT is *Other communications equipment manufacturing* (33429).

**Table 3: CT employment, by education**

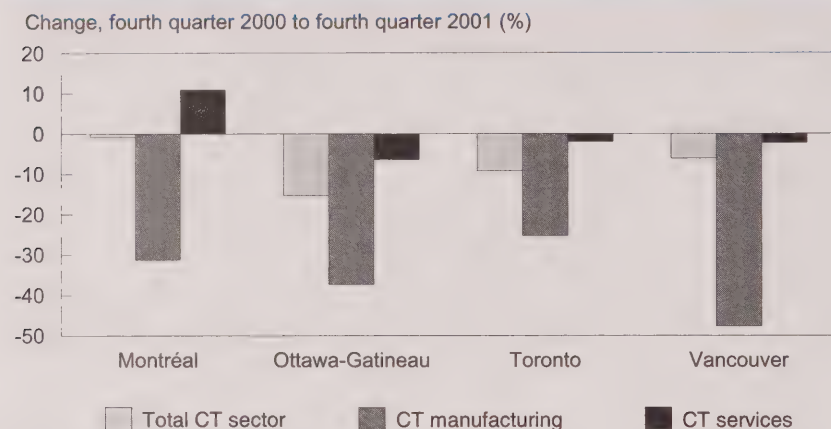
	Fourth quarter 2000	Change from fourth quarter 1996		Fourth quarter 2001	Change from fourth quarter 2000	
	'000	'000	%	'000	'000	%
<b>Total</b>	<b>642.1</b>	<b>210.9</b>	<b>48.9</b>	<b>607.5</b>	<b>-34.6</b>	<b>-5.4</b>
High school or less	125.4	23.6	23.2	123.2	-2.2	-1.8
Some postsecondary	61.5	11.8	23.8	55.1	-6.4	-10.4
Postsecondary, non-university	216.6	57.4	36.1	207.9	-8.7	-4.0
University degree	238.7	118.0	97.8	221.3	-17.3	-7.3

Source: Labour Force Survey

the sample size). Computer and telecommunications employment tends to be concentrated in large urban centres. In fact, about two-thirds of all CT workers are employed in Toronto, Montréal, Vancouver, and Ottawa-Gatineau—much higher than the share of total employment in these centres (39%).

Although similar in many regards, the CT workforces in these four key centres have some different

**Chart F: In each of the four urban centres, CT manufacturing employment fell sharply in 2001.**



Source: Labour Force Survey

characteristics. For example, Toronto has a relatively large computer and peripheral equipment manufacturing component, while Montréal and Ottawa-Gatineau are more specialized in communications equipment manufacturing. A relatively large proportion of Montréal's workforce is also employed in semiconductor manufacturing. Vancouver, meanwhile, tends to lean toward the services side with its important telecommunications and computer systems design industries.

With different CT sector composition as well as different economic conditions in the four centres, different CT employment trends in 2001 might also have been expected—but what *did* happen?

During the 1997-2000 boom, CT employment in the four centres rose 64%—remarkable growth for a four-year period. However, in 2001, conditions took a dramatic

turn for the worse (Chart F). In the fourth quarter, CT employment in Ottawa-Gatineau was down 10,000 (-15%) from a year earlier (Table 4). While not the only area of weakness, the communications equipment industry laid off numerous workers. Toronto had 17,000 fewer workers at the end of the year (-9%), while in Vancouver employment dropped 4,000 (-6%). In Montréal, the drop was less dramatic as gains in employment in CT

services largely offset declines in manufacturing. At the end of 2001, CT employment in Montréal was down 1,000 (-1%).

In Montréal and Ottawa-Gatineau, CT employment peaked sooner in the year, and also noted a recovery in the last quarter. In Montréal, the peak of 106,000 occurred in December 2000. By September, that number had dropped to 91,000 (-15%) but rose considerably in the last quarter. Ottawa-Gatineau reached its peak in March 2001 (69,000), and bottomed out in September (51,000 or -26% from the peak), recovering somewhat in the last quarter.

In both Toronto and Vancouver, CT employment peaked in the middle of 2001. In Toronto, the peak was attained in July, when there were 204,000 CT workers, a figure that dropped to 169,000 (-17% from the peak) at the end of the year. In Vancouver, CT employment hit 64,000 in August but slid to 58,000 by December (-8% from the peak). Unlike in Montréal and Ottawa-Gatineau, CT employment in Toronto and Vancouver showed no increase in the last quarter of 2001.

**Table 4: CT employment in major urban centres**

	Fourth quarter 2000	Change from fourth quarter 1996		Fourth quarter 2001	Change from fourth quarter 2000	
	'000	'000	%	'000	'000	%
Toronto	186.2	80.0	75.3	169.1	-17.1	-9.2
Montréal	106.3	32.8	44.6	105.4	-0.9	-0.8
Ottawa-Gatineau	67.5	28.4	72.6	57.2	-10.3	-15.3
Vancouver	62.1	23.9	62.6	58.3	-3.8	-6.1

Source: Labour Force Survey



## Summary

Gross domestic product in the information and communication technology (ICT) sector declined rather dramatically at the end of 2001, especially in the manufacturing component. This led to layoffs and hiring freezes in ICT companies. While the full scale of the ICT decline is not directly measurable, total employment can be estimated in a core sub-sector of ICT: computer and telecommunications. This sub-sector experienced amazing job growth during the 1997-2000 period. However, CT employment fell dramatically in 2001, especially in its manufacturing industries. Some types of workers, such as women, employees, and university graduates, were more affected by this decline. Similarly, areas such as Ottawa-Gatineau and Toronto were hit harder by high-tech woes than most other urban areas in Canada.

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## Perspectives

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## ■ Note

1 Although not seasonally adjusted, these CT data show little if any seasonal pattern. In other words, seasonally adjusting the overall CT employment series has little effect.

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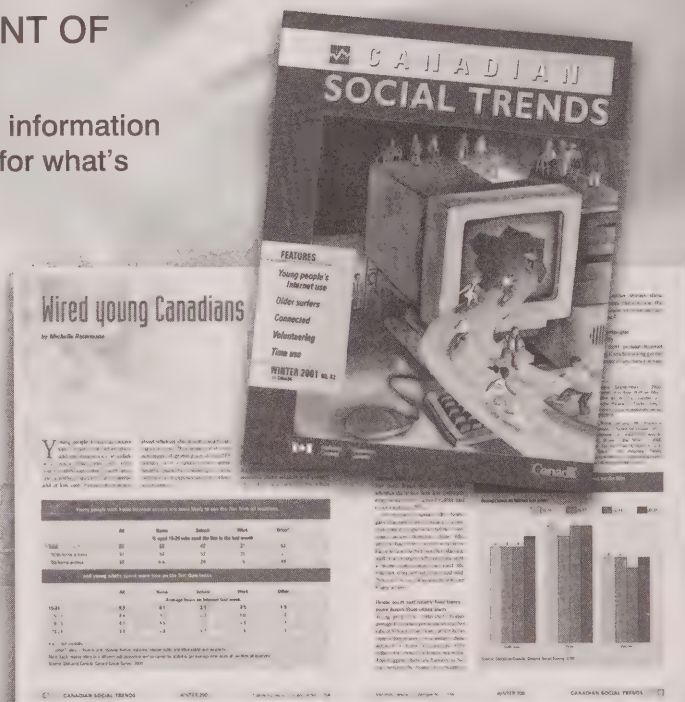
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# Duration of multiple jobholding

Katherine Marshall

**M**ULTIPLE JOBHOLDERS are a relatively small but important element of the labour market. Knowing the number of secondary jobs held by workers is necessary to calculate the total number of jobs in the economy. Using cross-sectional data, various aspects of multiple jobholding or 'moonlighting' have been previously studied in *Perspectives* (Sussman, 1998; Pold, 1995; Cohen, 1994; Webber, 1989).

With the relatively recent availability of longitudinal data, another facet of multiple jobholding can now be examined—the length of time people work at more than one job. This information can give insight into the stability and dynamics of multiple jobholding. Do people work at more than one job for years or only briefly? If multiple jobholding is generally a stable long-term activity, then the incidence rate, as well as the work schedule and income of multiple jobholders, would remain relatively constant. Conversely, if multiple jobholding is mainly a short-term activity, then the turnover rate of secondary jobs would be high, and the yearly incidence rate of multiple jobholding in the population would also be higher.

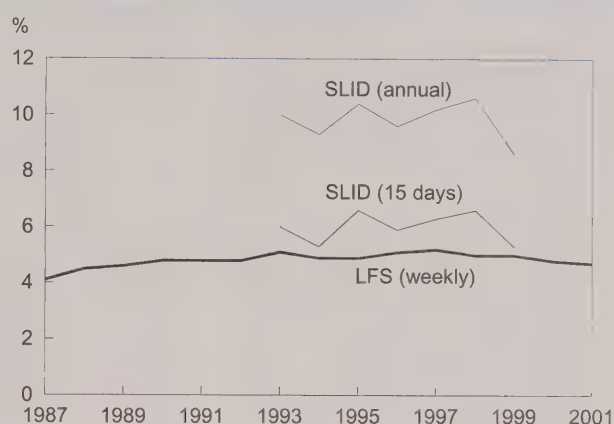
This article looks at the duration of multiple jobholding and the characteristics of short-, medium-, and long-term multiple jobholders, beginning with a look at monthly and annual incidence rates of multiple jobholding over time (see *Data sources and definitions*).

## One in 10 workers hold multiple jobs each year

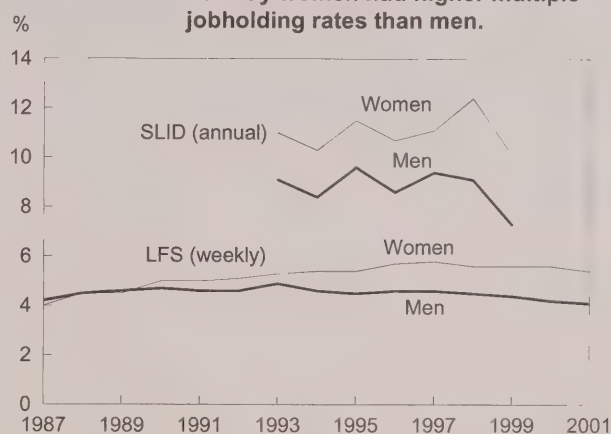
During the Labour Force Survey (LFS) reference period,<sup>1</sup> roughly 5% of workers held more than one job in 2001, a rate that did not change much over 15 years (Chart A).

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**Chart A: The one-year multiple jobholding rate\* was double that of one week ...**



**... but either way women had higher multiple jobholding rates than men.**



Sources: Labour Force Survey; Survey of Labour and Income Dynamics

\* Percent of employed who multiple jobheld sometime during the reference period.

However, since the LFS sample changes each month, it is not possible to determine if multiple jobholders are the same people from month to month.

On the other hand, the Survey of Labour and Income Dynamics (SLID) collects monthly labour market information from the same respondents for six years (longitudinal data), thereby allowing labour market activity changes for individuals to be examined. Therefore, SLID permits the calculation of not only a monthly, but also an annual multiple jobholding rate—that is, the incidence of having at least one multiple jobholding experience over the course of a year. With SLID, persons are considered to be multiple jobholders in any month that they held more than one job concurrently; the spell must have lasted at least 15 consecutive days, and only part of the total period need fall in that month. (Slight differences in multiple jobholding definitions between SLID and LFS may account for some of the monthly rate variation—6% versus 5%, respectively.<sup>2</sup>) When the SLID reference period is extended to one year, approximately 10% of those employed experienced multiple jobholding for at least 15 days or

more, at least once during a year between 1993 and 1999 (see *Data sources and definitions*).

Both multiple jobholding rates show that women are more likely to be multiple jobholders than men. For example, annual average 1999 LFS data show that 4.4% of employed men held down more than one job, compared with 5.6% of women. In the same year, SLID estimated that 7.3% of men experienced at least one episode of multiple jobholding, compared with 10.1% of women. However, women also have much higher involuntary and voluntary part-time employment rates<sup>3</sup> than men (Marshall, 2001); this difference is likely linked to their higher multiple jobholding rates. For involuntary part-time workers, a second job helps increase total work hours, whereas for voluntary part-time workers, two part-time jobs may offer a more flexible work arrangement than one full-time job.

### On average, multiple jobholding lasts eight months

Since in any given month approximately 6% of the employed are multiple jobholders compared with 10% over the course of a year,

workers must be moving into and out of this work arrangement. SLID data for 1996 show that multiple jobholding peaked in July and August (6.4%) and dropped to 6.1% in September (Table 1). The 40,000 net drop between August and September resulted from 91,000 workers beginning this work arrangement in September and 131,000 stopping after August. The multiple jobholding exit and entry population in the two months accounted for 1.5% of employment. The surge in multiple jobholders in the summer months is likely a reflection of the annual employment increase during this time (increasing the opportunity to multiple jobhold), as well as an increased student population looking for short-term employment.

The considerable month-to-month turnover indicates that multiple jobholding is not a long-term activity for many. In fact, the median duration of the first spell for all multiple jobholders in 1996 was eight months (Table 2). Furthermore, almost 6 in 10 held multiple jobs for a year or less—40% for 1 to 6 months, and 17% for 7 to 12 months. Another 15% ended somewhere between 13 months and two years. The rate

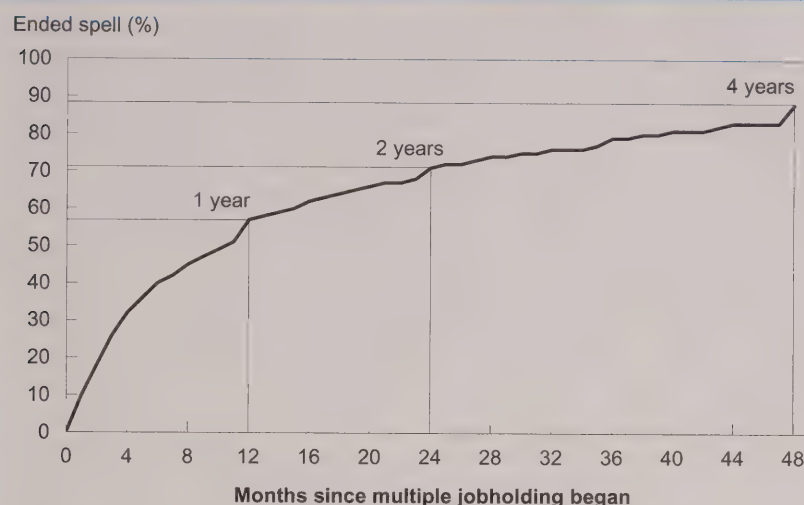
**Table 1: Multiple jobholding in 1996**

	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
	'000											
Multiple jobholders												
A New in the month	...	41	47	53	99	92	93	55	91	58	43	50
B Last month, but not this month	...	-25	-22	-44	-36	-36	-75	-50	-131	-66	-54	-54
C From previous month	...	782	798	822	830	893	949	967	972	932	924	913
D Total in the month	782	798	822	830	893	949	967	972	932	924	913	910
	%											
Multiple jobholding												
Rate: D/employed	...	5.2	5.4	5.5	5.9	6.2	6.4	6.4	6.1	6.1	6.0	6.0
Changed MJH status in month: (A+ B )/employed	...	0.4	0.5	0.6	0.9	0.8	1.1	0.7	1.5	0.8	0.6	0.7

Source: Survey of Labour and Income Dynamics



**Chart B: Six in ten 1996 multiple jobholders ended their first spell within a year.**



Source: Survey of Labour and Income Dynamics

fell off considerably after two years (Chart B). Nevertheless, 1 in 10 multiple jobholders in 1996 had worked at more than one job for more than four years—making this work arrangement a way of life.

Longitudinal data can also provide information about subsequent multiple jobholding—an activity which turns out to be quite prevalent. Of the 1.1 million (88%) multiple jobholders in 1996 who stopped within the four-year period, almost one-third (31%) resumed at least once before 1999 (Table 2). The median length of time before starting a second spell was nine months.

### Multiple jobholders tend to be younger and better educated

A number of demographic and other differences are evident between those with one job and those with two or more. However, some striking differences exist within the multiple jobholding community as well—particularly between those who juggle multiple jobs for six months or less (short-term), and those who do so for three years or more (long-term).

In 1996, the median age among single job workers was 38, compared with 33 among multiple jobholders (Table 3). However, when all multiple jobholders were followed over the next four years, those who turned out to be short-term multiple jobholders had the youngest median age (27), and long-term the oldest (40).

The large age difference between the two groups suggests different reasons for pursuing the activity. Unpublished data from the 1995 Survey of Work Arrangements and similar 1997 U.S. data confirm this supposition. Younger workers (under 35) were the most likely to state either household expenses or debts as the main reason for holding more than one job, whereas older workers (45 and over) were most likely to answer that they enjoyed the work on the second job (Martel, 2000). Money problems, such as debt, suggest a temporary situation that might be resolved with a second job. Enjoyment of the work arrangement, on the other hand, is likely a key influence in extending the duration of the activity.

Being older, long-term multiple jobholders also tended to be more settled—75% were married and 54% had dependent children at home. Only 46% of short-term multiple jobholders and 67% of single jobholders were married.

**Table 2: Duration of first multiple jobholding spell**

	Multiple jobholders in 1996		Started a second spell	
		%		%
<b>Total</b>	<b>1,289,220</b>	<b>100</b>	<b>352,890</b>	<b>31*</b>
6 months or less	512,210	40	181,800	35
7 to 12 months	217,010	17	73,300	34
13 to 24 months	191,880	15	77,770	41
25 to 48 months	214,340	17	F	F
49 months or more	153,780	12	0	...
Median length of completed spell		8 months		

Source: Survey of Labour and Income Dynamics

\* The denominator consists of completed spells only (excludes 49 months or more group).

**Table 3: Personal characteristics of multiple jobholders, 1996**

	Total employed	Single job	Months of multiple jobholding			
			Total	6 or less	7 to 35	36 or more
			'000			
<b>Both sexes</b>	<b>14,051</b>	<b>12,762</b>	<b>1,289</b>	<b>512</b>	<b>479</b>	<b>298</b>
			%			
Men	54	55	50	51	45	58
Women	46	45	50	49	55	42
			Years			
Median age	38	38	33	27	34	40
			%			
<b>Marital status</b>						
Married or common-law	66	67	58	46	60	75
Not married	34	33	42	54	40	25
<b>Children at home</b>						
Children under 16	42	43	41	32	43	54
No children under 16	58	57	59	68	57	46
<b>Education</b>						
High school or less*	52	53	46	55	41	36
Postsecondary certificate, diploma or degree	48	47	54	45	58	64
<b>Student status</b>						
Part- or full-time	18	17	26	40	23	F
Not a student	82	83	74	60	77	94
<b>Region</b>						
Atlantic	100	92	8			
			100	50	31	19
Quebec	100	94	6			
			100	48	35	17
Ontario	100	92	8			
			100	39	39	22
Manitoba and Saskatchewan	100	85	15			
			100	38	35	27
Alberta	100	85	15			
			100	36	39	25
British Columbia	100	88	12			
			100	35	38	27

Source: Survey of Labour and Income Dynamics

\* May include some postsecondary education that was not completed.

On average, a higher proportion of multiple jobholders (54%) had a post-secondary certificate, diploma or university degree compared with non-multiple jobholders (47%). However, considerable differences were again seen by type of multiple jobholder. Some 45% of short-term multiple jobholders had

completed some form of post-secondary schooling compared with 64% of long-term ones. The higher education levels among long-term multiple jobholders may in part reflect their higher average age—being older they have had more chance to complete all their schooling. Indeed, some 40% of

short-term multiple jobholders were attending school in 1996, either part or full time, compared with a very low percentage of long-term ones. However, long-term multiple jobholders were also more likely to work in jobs normally requiring postsecondary schooling (Table 4).

Finally, multiple jobholding rates and durations also varied by province. High rates occurred in Manitoba, Saskatchewan, and Alberta, where 15% of the employed held two or more jobs at least once in 1996. The high rate is not unexpected given that these three provinces have proportionally high levels of employment in agriculture, the occupational group with the highest multiple jobholding rate.

About half of multiple jobholders in the Atlantic region and Quebec were short-term, compared with 39% or less in the other areas. The exceptionally high short-term rate in the Atlantic region (50%) may be linked to the higher-than-average employment levels in the top three seasonal industries: fishing and trapping, logging and forestry, and construction.

### One-third of short-term multiple jobholders work in sales and service

Overall, the type of main job held by single and multiple jobholders was relatively similar.

However, a slightly different story emerges when the occupations of main and second jobs held by short-, medium- and long-term multiple jobholders are examined.

Those who started and stopped multiple jobholding after a short time (6 months or less) were much more likely to have a sales and service main or second job (34% and



## Data sources and definitions

The **Survey of Labour and Income Dynamics (SLID)** is a longitudinal household survey that began in January 1993. Every three years some 15,000 households are added and surveyed annually for six years, completing two detailed questionnaires each year—one on labour market activity and another on income. This article focused on people who entered the survey in 1996 (Panel 2) and responded consecutively for the next four years (1996 to 1999). Although six years of information are also available for the 1993 Panel 1 respondents, some pertinent secondary job information, essential for this study, was missing. Respondents who were employed when they entered SLID in 1993 were asked the start dates of their main job only, whereas respondents entering in 1996 were asked the start date of all jobs currently held. The start date of all jobs was required in order to calculate the duration of a multiple jobholding spell.

The **Labour Force Survey (LFS)** is a monthly household survey that collects information on labour market activity from all persons 15 and over, and includes a question on whether a person had more than one job during the reference week.

The 1995 **Survey of Work Arrangements**, a supplement to the November 1995 LFS, asked, among other things, why multiple jobholders had chosen to work at more than one job.

For SLID, the **multiple jobholder rate** is based on the number of persons holding more than one job in a given month. The total spell of multiple jobholding must last at

least 15 days, and only part of the total period need fall in that month. For the LFS, the rate is based on the number of persons who were multiple jobholders at any time during the survey reference week. The monthly average for multiple jobholding for both SLID and LFS is the 12-month average from January to December.

The **annual multiple jobholding rate** can be calculated with SLID data only. It refers to the number of persons who were multiple jobholders for at least 15 consecutive days during the year, divided by the number of persons who were employed some time during the year.

The **duration of multiple jobholding** is the length of the first multiple jobholding spell identified for all multiple jobholders in 1996. Most of the 1996 multiple jobholding population (56%) started this work arrangement sometime in 1996, and the duration of their multiple jobholding spell ran from the 1996 month in which they started to the month and year they stopped or the end of the study period (December, 1999), whichever came first. The remaining 44% of the multiple jobholders entered SLID already carrying two or more jobs, and therefore the duration of their multiple jobholding spell ran from the month and year they began multiple jobholding (sometime prior to 1996), to the month and year they stopped, or the end of the study period.

For **short-term multiple jobholders** the spell lasted six consecutive months or less. For **medium-term**, the duration was 7 to 35 months; and for **long-term**, 36 months or more.

40% respectively) than were other multiple jobholders, especially long-term ones (Table 4). In fact, only 18% of long-term multiple jobholders had a main job and 29% had a second job in sales and service. Since over one-third of all sales and service jobs are part-time, this field of work is often a source of second jobs. On the other hand, because these jobs offer relatively low average earnings, many in this line of work (full- or part-time) may be driven to take on another job to meet short-term financial needs. Other studies have also found high multiple jobholding rates among occupations with flexible schedules and high rates of part-time (Sussman, 1998; Amirault, 1997).

Conversely, long-term multiple jobholders were more likely to have a main or second job in management, business, or finance and administration (29% and 22%, respectively) than were short-term (20% and 16%). Another noteworthy difference was in farming. Of long-term multiple jobholders, 7% had a main job and 14% had a second job in agriculture, compared with only 4% and 6% of all multiple jobholders.

Indeed, long-term multiple jobholders were more likely to be engaged in either higher-level, better-paying jobs (often found in business or management) or in self-employed jobs such as farming. A full 62% of long-term multiple

jobholders were business owners (in either their main or second job), compared with only 23% of short-term and 41% of medium-term multiple jobholders. Obviously, if the goal is to take on a second job for a limited period of time, self-employment is not the answer.

### Long-term multiple jobholders earn more, work more

Hours of work and earnings also differ within the multiple jobholding population. Short-term multiple jobholders put in fewer hours at their main job (20) than did medium- (30) or long-term (38) (Table 4). Long-term multiple jobholders had the same median hours in their main job as did

**Table 4: Job characteristics of multiple jobholders, 1996**

	Total employed	Single job	Months of multiple jobholding			
			Total	6 or less	7 to 35	36 or more
%						
<b>Occupation (main job)</b>						
Management, business, finance and administration	27	27	24	20	27	29
Natural and applied science, health	9	9	11	8	14	13
Social science, art, culture, recreation	9	9	12	10	12	14
Sales and service	26	26	29	34	30	18
Agriculture	3	3	4	F	F	7 <sup>E</sup>
Trade, transport, processing and other	25	26	20	26	14	19
<b>Second* job</b>						
Management, business, finance and administration			19	16	20	22
Natural and applied science, health			9	7	10	10
Social science, art, culture, recreation			14	11	16	15
Sales and service			36	40	36	29
Agriculture			6	F	F	14
Trade, transport, processing and other			17	24	15	9
<b>Class of worker (main/second* job)</b>						
Both (or only) paid	83	85	61	77	59	38
Paid/self-employed			21	10	22	40
Self-employed/paid			11	10	13	11
Both (or only) self-employed	17	15	6	F	6	11
<b>Work status (main job)</b>						
Full-time	80	81	68	66	65	77
Part-time	20	19	32	34	35	23
\$						
<b>Median yearly earnings (all jobs)</b>	20,960	21,720	14,330	9,770	15,840	29,040
Hours						
<b>Median weekly hours</b>						
Main job	38	38	30	20	30	38
All jobs	38	38	40	31	41	48

Source: Survey of Labour and Income Dynamics

\* For multiple jobholders, this refers to the job with the most hours after the main job.

single jobholders, mainly because both groups were likely to be working full time (77% and 81%, respectively). Only two-thirds of short- and medium-term multiple jobholders worked full time at their main job. The second job for all multiple jobholders added roughly

10 hours to their workweek, giving long-term multiple jobholders the longest work schedule at 48 hours per week.<sup>4</sup> This extra long workweek reinforces the notion that many long-term multiple jobholders participate in the arrangement because they enjoy the work.

Similar to hours, annual 1996 earnings increased with the length of multiple jobholding—\$9,770 for short-term, \$15,840 for medium-term, and \$29,040 for long-term multiple jobholders. Median earnings for single jobholders were between those of medium and long-term multiple jobholders at \$21,720. Although long-term multiple jobholders earned over \$7,000 more per year than any other group, it is important to keep in mind their long workweeks. When earnings are divided by hours, long-term multiple jobholders had only the second highest hourly earnings rate (\$11.45) (Chart C). Although single jobholders earned less annually than did long-term multiple jobholders, they also worked considerably fewer hours per week. They therefore had the highest average hourly earnings (\$13.10). Short-term multiple jobholding is by far the least lucrative work arrangement, with an average hourly rate of only \$7.20. It is not surprising to find that such a poorly paid work arrangement ends early, as most in this situation are probably looking for a better-paying single (or second) job.

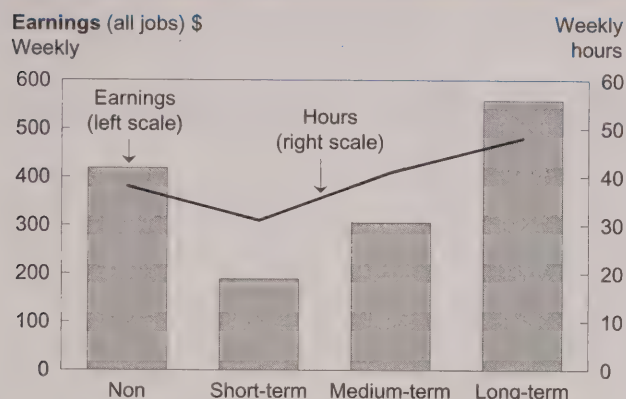
## Summary

The SLID longitudinal data reveal a dynamic alternative work arrangement, embarked on for varying lengths of time and for various reasons.

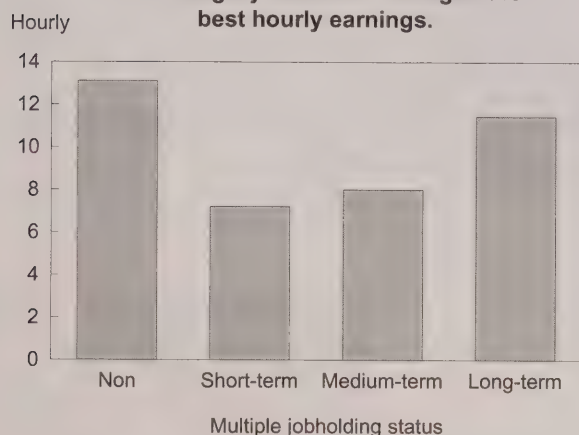
Over the 1996-to-1999 study period, 10% of the employed had at least one episode of multiple jobholding during the course of a year. Multiple jobholding tended to be relatively short-term. Of the 1.3 million multiple jobholders in 1996, 88% had stopped by the end of 1999, and the median duration of



**Chart C: Long-term multiple jobholders had the highest weekly earnings and hours\*...**



**... but single jobholders managed the best hourly earnings.**



Source: Survey of Labour and Income Dynamics  
\* Refers to respondent's situation in 1996.

these ended episodes was eight months. But, almost one-third of those who stopped multiple jobholding resumed within the study period.

For a small segment of the multiple jobholding population, this arrangement had become part of their life-style. One in 10 multiple jobholders in 1996 were carrying more than one job for at least four years.

Long-term (three years or more) multiple jobholders differed considerably from those who held multiple jobs for a shorter duration. For example, 62% of long-term multiple jobholders were self-employed in their primary or secondary job, compared with only 23% of those who

held a second job for six months or less. Furthermore, on average, long-term multiple jobholders were more likely to be older, married, working longer hours, and earning higher hourly wages than other multiple jobholders.

### Perspectives

#### Notes

1 Data collection for the LFS is carried out each month during the week following the LFS reference week (normally the week containing the 15<sup>th</sup> day of the month).

2 Some variation in multiple jobholding rates between SLID and the LFS may also be due to the difference in sample sizes—15,000 versus 60,000 households, respectively.

3 Involuntary or voluntary part-time workers expressed as a proportion of total employment.

4 Further analysis of the long-term multiple jobholding population showed that almost one in five had a main or second job in agriculture. It is well known that farmers average long workdays. However, even when farmers are excluded from the median hours calculation, long-term multiple jobholders still averaged 48 hours per week.

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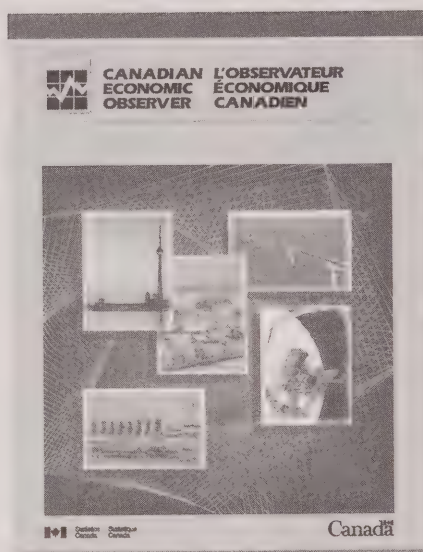
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# Barriers to job-related training

Deborah Sussman

**C**ONTINUOUS INVESTMENT in human resources through job-related training is essential for ensuring long-term economic growth in today's global economy. However, not everyone who wants or needs job-related training has access to it. If policies are to be developed to improve access, then it is necessary to understand what these barriers are and who is experiencing them.

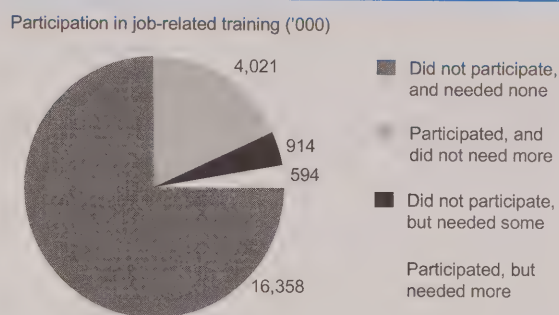
For the year 1997, about 1.5 million people reported needing some job-related training but not taking it. This amounted to 7% of Canadians aged 17 and over (excluding full-time students), down from close to 9% in 1993. Of the 1.5 million, 40% had had some job-related training in that year but felt they needed more, while the remaining 60% had received none at all (Chart A). At the time of the survey, the majority were employed full time (71%), while the rest were employed part time (12%), unemployed (9%), or not in the labour force (8%).<sup>1</sup>

What are the most important barriers to job-related training? Do some groups experience particular obstacles? Has access to job-related training improved over time? This article will examine these questions using the results from the 1998 and 1994 Adult Education and Training Survey (AETS) (see *Data source and definitions*).

## Types of barriers

Three main types of barriers to participation in job-related training have been identified in the literature: situational, institutional and dispositional (or psychological).<sup>2</sup> Situational barriers arise from one's situation in life at a given time—for example, being too busy at work, financial constraints, family responsibilities or lack of child care, and language or health problems. Institutional barriers consist of established practices and

**Chart A: In 1997, 1.5 million people did not take some needed job-related training.\***



Source: Adult Education and Training Survey

\* Population 17 and over, excluding full-time students.

procedures that exclude or discourage participation, such as high tuition fees, entrance requirements, limited course offerings, or courses offered at inconvenient times or locations. Dispositional barriers involve attitudes and opinions towards learning, as well as perceptions of oneself as a learner (Cross, 1981).

These barriers, while important in their own right, are not mutually exclusive, and may overlap or act together to compound the problems faced by an individual. For example, if one is too busy at work, then the possibility of a course being offered at an inconvenient time becomes greater, since one is all the more limited to course offerings during non-work hours. Moreover, if a course or program is not offered at a convenient location, the added expense of travel creates an additional obstacle.

The AETS provides information regarding situational and institutional barriers. Since the questions pertaining to the specific barriers faced were directed only at those who had indicated an interest in participating in job-related training, dispositional or psychological barriers were not directly addressed. However,

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almost 80% of people did not participate in any job-related training in 1997, and the vast majority of them felt they needed none. This may suggest a lack of motivation operating as a dispositional or psychological barrier (Statistics Canada and HRDC, 2001a). Individuals were also asked to identify *all* the barriers they faced (see *Data source and definitions*).

### Who faced barriers?

In 1997, some groups were more likely to face barriers than others (Table 1). In particular, people in British Columbia, those between the ages of 35 and 44, those with preschool (under age 6) children in the household, and university graduates had unmet training needs above the average of 7%.

Similarly, full-time workers and workers in service industries such as public administration; finance, insurance and real estate; and education, health and welfare were also characterized by higher rates (Table 2). Professional and managerial occupations, particularly in natural sciences, engineering and mathematics, also had higher rates.<sup>3</sup> These industries and occupations were also associated with higher rates of participation in job-related training, as were university graduates (Statistics Canada and HRDC, 2001a). This supports the idea that training breeds training, or the perceived need for more training. That is, participating in some job-related training may create an awareness of the need for more training that may not be able to be met. This may increase the likelihood of these groups facing unmet training needs, or barriers to job-related training.

**Table 1: Personal characteristics of people reporting unmet job-related training needs**

	Number		Rate	
	1997	1993	1997	1993
	'000		%	
<b>Canada</b>	<b>1,509</b>	<b>1,679</b>	<b>6.9</b>	<b>8.6</b>
Newfoundland and Labrador	25	26	6.4	6.5
Prince Edward Island	6	7	6.1	7.6
Nova Scotia	41	45	6.0	6.9
New Brunswick	27	31	4.9	6.1
Quebec	292	390	5.4	7.9
Ontario	622	600	7.4	8.2
Manitoba	59	74	7.5	10.0
Saskatchewan	47	51	6.7	7.8
Alberta	150	192	7.4	10.9
British Columbia	240	264	8.3	10.7
<b>Both sexes</b>				
Men	778	920	7.3	9.7
Women	731	760	6.5	7.6
<b>Age</b>				
17 to 24	115	145	5.7	8.7
25 to 34	417	539	9.1	11.7
35 to 44	545	597	10.6	13.3
45 to 54	344	315	8.6	9.5
55 to 64	74	74	2.8	3.1
<b>Education</b>				
Less than high school	168	185	2.9	3.1
High school graduate	224	344	5.2	8.1
Postsecondary	745	729	9.1	11.2
University degree	372	421	10.7	15.5
<b>Pre-school children in household</b>				
No children under 6	1,187	1,273	6.4	7.9
At least one child under 6	321	406	9.8	12.3

Sources: Adult Education and Training Survey; Labour Force Survey

Conversely, New Brunswick and Quebec had the lowest rate of all provinces at 5% each, while barriers to job-related training were less prevalent among women (as opposed to men), older individuals (aged 55 to 64) and those with less than a high-school education. Likewise, workers in agriculture and other primary industries; as well as those in primary, and

construction and other occupations were also associated with lower rates of unmet job-related training needs.

Despite these variations, virtually all major groups (the only exception being service occupations) experienced a decrease in the incidence of unmet job-related training needs between 1993 and 1997.



**Table 2: Job characteristics of people reporting unmet job-related training needs\***

	Number of people		Rate	
	1997	1993	1997	1993
	'000		%	
<b>Industry</b>				
Goods-producing	329	460	7.9	10.7
Agriculture and other primary	43	76	5.7	8.8
Manufacturing	216	283	8.8	12.3
Construction	53	75	6.8	7.9
Utilities	F	26	F	13.5
Service-producing	1,031	1,218	9.4	11.1
Transportation	77	75	7.6	7.6
Trade	168	228	6.9	9.1
Finance, insurance and real estate	94	117	11.3	12.9
Education, health and welfare	279	338	10.8	11.5
Business, commercial, and personal services	282	268	8.9	10.4
Public administration	131	192	13.8	19.1
<b>Occupation</b>				
Professional and managerial	662	750	12.7	15.6
Managerial and administrative	282	314	13.1	15.5
Natural sciences, engineering and mathematics	125	139	17.0	23.9
Social sciences and religion	38	51	9.6	14.1
Teaching	84	93	10.4	12.8
Medicine and health	93	105	11.4	12.9
Artistic, literary and recreation	39	49	12.8	16.0
Clerical, sales and services	394	523	7.3	8.9
Clerical	151	256	7.4	10.5
Sales	104	131	7.4	9.6
Services	139	137	7.1	6.7
Blue-collar	304	404	6.8	8.8
Primary	33	58	5.2	7.6
Manufacturing	171	213	8.4	11.5
Construction and other	100	134	5.4	6.7
<b>Type of work</b>				
Full-time	1,069	1,321	9.8	13.5
Part-time	178	172	7.5	10.3

Sources: Adult Education and Training Survey; Labour Force Survey

\* Refers to main job only. Includes persons who did not have a job during the Labour Force Survey reference week, but who were employed within the previous year; excludes persons who did not have a job within the previous year.

## How the barriers ranked

In 1997, being too busy at work (42%) and expense (40%) were the two most important barriers faced by those who felt they needed job-related training but did not take it. These situational barriers were followed by institutional ones—the course or program was

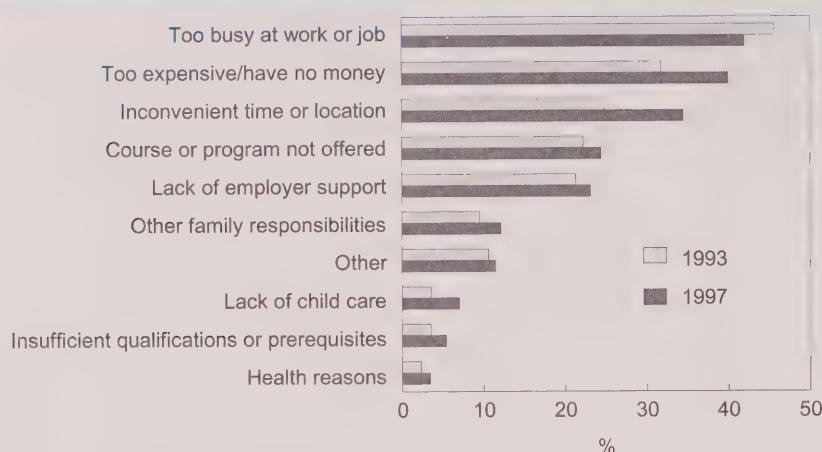
offered at an inconvenient time or location (35%) or not at all (24%), or the employer was not supportive (23%). Family responsibilities or lack of child care posed a situational barrier to almost one in five people. Of much less significance were a lack of sufficient qualifications or prerequisites (5%,

an institutional barrier) and health reasons (3%, a situational barrier) (Chart B).

Although the ranking of barriers did not change from 1993 to 1997, all except being too busy at work were cited by a greater proportion of people in 1997. That is, while fewer people overall faced barriers to job-related training in 1997 compared with 1993, the number of barriers per person increased. Specifically, in 1997 the average number of barriers cited per person was 2.2, with 61% of people reporting two or more barriers, and more than 25% reporting three or more. This is in contrast to 1993, when the average number of barriers per person was only 1.8, with less than half of people reporting two or more, and less than one-fifth reporting three or more. The ones that increased the most were inconvenient time or location, expense, and a lack of child care or other family responsibilities.

## Cost a key barrier

Among people who faced barriers, those who had taken some job-related training in 1997 were more likely to cite being too busy at work, inconvenient time or location, and the unavailability of a course or program as barriers to further training. By contrast, those who had not taken any training at all over the period were more likely to report expense, a lack of employer support, child care or other family-related responsibilities, and a lack of qualifications. In fact, these concerns appeared to be so difficult to overcome for this group that they were effectively prevented from taking any job-related training at all during the period.

**Chart B: Too busy at work and expense cited as top barriers.**

Source: Adult Education and Training Survey

Note: Due to multiple responses, the sums may exceed 100%.

### Full- versus part-time workers

Full-time workers were more likely to view being too busy at work, inconvenient time or location, the unavailability of a course or program, and the lack of employer support as barriers to job-related training. Expense, and family responsibilities or a lack of childcare figured more prominently for those working part time.

### Too busy at work

Of the 1.5 million Canadians who faced barriers in 1997, being too busy at work was seen as a barrier to job-related training by 42% (down from 46% in 1993). It was particularly important in Alberta and Manitoba (Table 3). Among the groups reporting this barrier more frequently were men, people in the 35-to-44 and 45-to-54 age groups, and university graduates. People working in finance, insurance and real estate industries; in agriculture and other primary industries; and in trade also reported this as a barrier more often

than those in other industries (Table 4). The same was true for those in primary occupations, and professional and managerial occupations—especially managers and administrators.

By contrast, women and individuals without a high-school diploma reported this barrier less frequently. Similarly, workers in medicine and health occupations found this barrier to be relatively less important.

### Too expensive

Expense was a barrier for 40% of Canadians who reported unmet training needs in 1997, up from 32% in 1993. It was mentioned by slightly more than half of people in British Columbia, followed closely by those in Newfoundland and Labrador. Expense was also relatively significant for women and for people under 35. Similarly, those employed in business, commercial and personal service industries; as well as those in service, and

medicine and health occupations reported this as a barrier more often.

Expense figured less prominently for residents of Quebec, men, older individuals and university graduates.

### Inconvenient time or location

Inconvenient time or location of courses was a barrier for about one-third of Canadians who felt they needed training in 1997, up from less than one-quarter in 1993. This was particularly true in the western provinces, with residents of Manitoba, Saskatchewan and Alberta stating this reason more often than residents of other provinces. Other relatively more affected groups included people between 45 and 54, and workers in medicine and health-related occupations—possibly reflecting their non-standard work schedules (Statistics Canada and HRDC, 1997). Among the groups least troubled by this factor were Quebecers, young people (aged 17 to 24), and those without a high-school diploma.

### Unavailability of a course or program

The unavailability of a course or program posed a barrier to nearly one-quarter of Canadians who faced barriers to job-related training, up slightly from 1993. The identification of this barrier may also indicate a lack of information about course and program offerings (Statistics Canada and HRDC, 1997), which may be as much a function of the individual as of the training institution.

This barrier was of relatively high concern to individuals living in Nova Scotia, those aged 45 to 54, and those working in public



**Table 3: Unmet job-related training needs by personal characteristics and training barrier**

	Too busy at work	Too expensive	Inconvenient time/location	Course or program not offered	Lack of employer support	Lack of child care and other family responsibilities
	%					
<b>Canada</b>	<b>42.0</b>	<b>40.0</b>	<b>34.5</b>	<b>24.4</b>	<b>23.1</b>	<b>19.1</b>
Newfoundland and Labrador	F	47.6	F	F	F	F
Prince Edward Island	F	F	F	F	F	F
Nova Scotia	30.1	38.2	28.1	31.5	36.7	20.5
New Brunswick	38.3	40.5	33.5	29.4	F	F
Quebec	41.9	29.7	24.3	24.6	24.2	13.0
Ontario	41.2	39.5	34.1	23.9	19.9	20.1
Manitoba	47.6	42.1	47.6	27.8	27.2	22.6
Saskatchewan	43.3	42.7	43.2	25.2	F	20.3
Alberta	49.1	40.3	43.2	23.1	31.6	24.4
British Columbia	42.1	52.1	38.9	22.1	23.1	19.1
<b>Both sexes</b>						
Men	46.6	34.4	34.8	23.0	23.9	9.6
Women	37.1	46.0	34.2	25.9	22.2	29.2
<b>Age</b>						
17 to 24	F	43.6	22.4	F	F	F
25 to 34	37.6	46.1	34.6	24.7	24.1	23.8
35 to 44	48.1	37.5	34.8	24.7	23.6	24.7
45 to 54	46.5	36.2	39.8	27.8	23.8	10.7
55 to 64	32.7	30.2	F	F	F	F
<b>Education</b>						
Less than high school	34.3	42.5	23.1	19.5	19.3	22.9
High school graduate	39.5	42.1	35.4	23.2	24.9	19.7
Postsecondary	39.0	42.1	35.7	26.8	24.1	19.2
University degree	53.0	33.4	36.7	22.6	21.7	16.8

Sources: Adult Education and Training Survey; Labour Force Survey

administration, education, health and welfare. Workers in clerical and teaching occupations also reported this barrier more often. Conversely, those without a high-school diploma; workers in business, commercial and personal service industries; and those in managerial and administrative occupations were among the groups that identified this barrier relatively less often.

### Lack of employer support

Almost one-quarter of Canadians who reported unmet training needs specified a lack of employer sup-

port as a barrier to job-related training in 1997, up slightly from one-fifth four years earlier. At first glance this may appear somewhat surprising, considering the growing need for skilled workers. However, more than half the people reporting this barrier neither belonged to a union nor were covered by a collective agreement; and almost one-quarter were employed by companies employing less than 100 people.<sup>4</sup> Firms whose employees are covered by collective agreements are generally associated with higher levels of support for training. Similarly, employer support

typically rises with firm size, as larger firms often have more resources at their disposal to undertake such activities (Statistics Canada and HRDC, 2001b).<sup>5</sup> Training is also more cost-effective for larger firms, since one instructor can train more employees at a time.

Lack of employer support was of greater concern to people living in Nova Scotia and Alberta, and to those working in transportation. By contrast, people living in Ontario; those without a high-school diploma; and workers in business, commercial and personal service

**Table 4: Unmet job-related training needs by job characteristics and training barrier\***

	Too busy at work	Too expensive	Inconvenient time/location	Course or program not offered	Lack of employer support	Lack of child care and other family responsibilities
	%					
<b>Industry</b>						
Goods-producing	45.6	33.4	35.5	27.9	23.3	11.1
Agriculture and other primary	55.8	F	45.1	F	F	F
Manufacturing	44.3	32.3	34.4	29.8	29.9	F
Construction	47.0	45.9	28.5	F	F	F
Utilities	F	F	F	F	F	F
Service-producing	46.7	38.1	36.7	25.1	26.2	20.0
Transportation	39.3	F	35.5	26.6	45.9	F
Trade	53.3	33.1	40.8	23.7	22.5	24.5
Finance, insurance and real estate	60.9	F	29.4	F	20.7	F
Education, health and welfare	40.4	40.4	44.8	32.0	30.7	22.5
Business, commercial and personal services	47.0	48.3	31.4	13.9	18.5	21.5
Public administration	44.7	28.8	31.3	33.8	30.3	F
<b>Occupation</b>						
Professional and managerial	50.6	35.0	39.3	24.1	27.7	17.5
Managerial and administrative	56.3	31.6	37.0	17.7	31.3	17.4
Natural sciences, engineering and mathematics	50.6	30.0	36.8	24.5	23.0	F
Social sciences and religion	51.2	F	F	F	F	F
Teaching	44.7	32.9	42.5	34.6	21.1	F
Medicine and health	37.1	49.5	50.7	23.4	28.2	26.2
Artistic, literary and recreation	F	F	F	F	F	F
Clerical, sales and services	41.5	39.4	31.1	27.4	24.3	21.7
Clerical	44.8	32.5	34.9	37.6	26.6	28.2
Sales	39.3	31.0	29.2	F	29.6	F
Services	39.6	53.2	28.5	22.1	17.7	18.9
Blue-collar	43.6	38.0	36.9	27.5	22.3	13.6
Primary	61.5	F	F	F	F	F
Manufacturing	43.2	38.9	38.9	31.3	24.4	F
Construction and other	38.5	38.4	29.5	22.0	23.6	F
<b>Type of work</b>						
Full-time	52.5	34.9	38.5	26.4	26.2	15.7
Part-time	28.7	38.9	31.0	22.0	20.5	28.6

Sources: Adult Education and Training Survey; Labour Force Survey

Note: Due to multiple responses, the sums may exceed 100%.

\* Refers to main job only. Includes persons who did not have a job during the Labour Force Survey reference week, but who were employed within the previous year; excludes persons who did not have a job within the previous year.

industries, and in service occupations cited a lack of employer support less often. In the case of the latter three, this may reflect in part a lack of expectation for such support.

### Child care and other family responsibilities

A lack of child care and other family responsibilities presented a problem for nearly 20% of Canadians who felt that they needed job-related training in 1997 but did not take it, up from 13% in 1993. These barriers were of particular significance to women (29% versus

10% for men) and to people aged 25 to 44—both groups that are most often responsible for these tasks. Residents of Quebec mentioned other family responsibilities or a lack of child care less frequently than other provinces.

### Summary

People who feel they need some job-related training cite various reasons for not taking it. Being too busy at work, a situational barrier, topped the list in both 1993 and 1997. Expense, a barrier that may be both



## Data source and definitions

The **Adult Education and Training Survey (AETS)** was conducted in January 1994 and 1998 as a telephone supplement to the Labour Force Survey (LFS). The LFS is a monthly household survey involving about 52,000 households across Canada. Labour force information is obtained for all civilian household members aged 15 and over. Excluded are residents of institutions, full-time members of the Armed Forces, persons living on Indian Reserves, and residents of the territories. For the AETS, the target population was modified to include only those aged 17 and over. Moreover, education and training information was collected for only one randomly selected member of the household aged 17 and over. Proxy responses were not permitted.

Although the AETS included persons over the age of 64, they were excluded from this analysis. People in this age group either have retired or are nearing retirement and are thus unlikely to feel the need for job-related training. Moreover, although data have been collected since 1984, the questionnaire structure and survey procedures changed between 1984 and 1991, making historical comparisons possible only for surveys conducted since 1992. The 1994 and 1998 surveys provide the most detail about why job-related training was not taken.

### Question used:

*At any time during 1997 (1993), was there any training or education that you needed to take for job-related or career reasons but did not?*

If the answer to this question was yes, the respondents were then instructed to identify all the barriers they faced:

*Course or program not offered  
Course or program at an inconvenient time or location  
Lack of sufficient qualifications or prerequisites*

*Lack of employer support  
Too busy at work or job  
Too expensive/have no money  
Lack of child care  
Other family responsibilities  
Language problem  
Health reasons  
Other reasons*

**Adult education and training** refers to activities followed by adults, whatever the content, level and method, that supplement or replace initial education. For the AETS, this is restricted to formally structured and sequentially organized activities, in which the participants follow a program of study or a series of experiences planned and directed by a teacher or trainer. It does not include education and training acquired informally while performing regular tasks at work (learning by doing) or watching someone else perform them.

**Job-related education and training** is a subset of adult education and training. It refers to activities taken for the development or upgrading of skills for use in present or future employment.

**Adult learners** are individuals aged 17 and over registered in part-time education or training activities. Individuals engaged in full-time education and training activities were included only if the activities were sponsored by their employer, or if they were aged 20 and over and enrolled in an elementary or secondary program, or if they were 25 and over and registered in a post-secondary program. These restrictions were imposed to exclude students between 17 and 24 in their initial cycle of education.

institutional and situational, ranked second. Health reasons were at the bottom of the list. Institutional barriers related to the course and employer support fell in the middle, as did a lack of child care or other family responsibilities (a situational barrier) and a lack of prerequisites (an institutional barrier).

These barriers varied in importance by various factors: previous job-related training, type of work (full-time or part-time), province, demographic characteristics, industry and occupation.

People between the ages of 35 and 44, those with preschool (under age 6) children in the household, and university graduates had above-average rates of unmet training needs, as did workers in service-producing industries—particularly public administration; finance, insurance and real estate; and education, health and

welfare—and those in professional and managerial occupations—particularly natural sciences, engineering and mathematics.

Conversely, barriers to job-related training were less prevalent among women, older individuals (aged 55 to 64) and those with less than a high-school education. Likewise, workers in agriculture and other primary industries, those in primary, and construction and other occupations were also associated with lower rates of unmet job-related training needs.

Although fewer people overall faced barriers to job-related training in 1997 compared with 1993, the number of barriers cited per person increased between the two years, suggesting that still more needs to be done to address the continued inequality of access.

## Perspectives

## ■ Notes

1 Labour force status refers to the month of January 1998 (or January 1994)—that is, the month immediately following the survey reference period—all of 1997 (or 1993). Therefore, a person employed in January 1998 may not have been employed at some point during 1997, and vice versa. Similarly, province of residence, level of education, industry and occupation also refer to an individual's situation in January. While there may have been some movements in these characteristics (particularly with respect to industry and occupation) during 1997, they are not deemed large enough to affect the overall findings.

2 This classification is not meant to provide a definitive way of grouping barriers to training. For example, in *A Report on Adult Education in Canada: Learning a Living*, these barriers are grouped somewhat differently (Statistics Canada and HRDC, 2001a).

3 Industry and occupational designation includes persons who did not have a job during the Labour Force Survey reference week, but who were employed within the previous year, and excludes persons who did not have a job within the previous year. See *Guide to the Labour Force Survey*, Statistics Canada, Catalogue no. 71-543-GIE, for a complete description of survey concepts and definitions.

4 Union membership, collective agreement coverage and firm size also refer to the individual's situation in the month of January 1998 (or 1994).

5 Other factors affecting the level of employer support of job-related training include the introduction of technological or organizational change in the firm and the level of importance attributed to human resources management in the firm's overall business strategy (Statistics Canada and HRDC, 2001b).

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# Seniors at work

Doreen Duchesne

**M**ANY CANADIANS perceive work as a tedious but necessary activity. It not only provides them and their dependants with the necessities of life, but also allows them to attain a higher standard of living than they would otherwise enjoy. Some people fantasize about winning a lottery to fund early retirement, while others count the days until they can substitute a pension for their paycheque and lead the kind of life they have dreamt of for years. This desire on the part of many workers is reflected by the ongoing decline in the median retirement age of workers in recent decades—from 64.9 years between 1976 and 1980, to 62.2 years between 1991 and 1995, to 61.0 years between 1996 and 2000 (see *Fact sheet on retirement* in this issue).

Despite this trend, a significant number of workers are not interested in early retirement. Indeed, many people greatly enjoy working throughout their lives, preferring to work until they are forced into retirement by ill health or age-related employment policies—or even until their dying day. While working seniors accounted for only 7.8% of their age group in 1996, some evidence suggests this proportion may increase in the future (Walsh, 1999).

This article focuses on the occupations of seniors who continue to work beyond 65—the traditional age of retirement. A number of demographic and other job characteristics are also examined, including age, sex, education, self-employment versus paid work, full-time versus part-time employment, and province or territory of residence (see *Data source and definitions*).

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## How many seniors are still at work?

According to the 1996 Census, over one-quarter million (255,200) Canadians 65 and over were employed, accounting for 1 in 13 persons in this age group (Table 1). An additional 15,700 seniors reported being unemployed, for a total labour force of 271,000.<sup>1</sup>

Although women accounted for the majority (57%) of the population aged 65 and over, most of the employed in this age group were men (68%). In contrast, the male-female employment split was more balanced in younger age groups. For example, men accounted for only 53% of all employed persons aged 25 to 54 in 1996. The relatively high proportion of men among employed seniors is likely due to the much lower labour force participation of senior women in their earlier years when social expectations were different than they are for younger women today.<sup>2</sup> As the baby boom generation ages, it is likely that the participation rate of older women will move closer to that of their male counterparts.

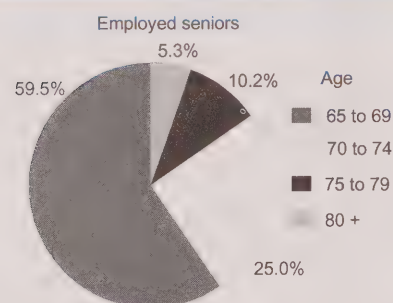
**Table 1: Labour market activity of seniors**

	Both sexes	Men	Women
	'000		
<b>Population</b>	<b>3,280</b>	<b>1,417</b>	<b>1,862</b>
In the labour force	271	184	87
Employed	255	175	81
65 to 69 years	152	103	49
70 to 74 years	64	44	20
75 to 79 years	26	19	8
80 years and over	14	9	4
Unemployed	16	10	6
Not in the labour force	3,009	1,233	1,776
	%		
Employment rate	7.8	12.3	4.3
Unemployment rate	5.8	5.2	7.2
Participation rate	8.3	13.0	4.7

Source: 1996 Census of Population

The age distribution of working seniors is strongly skewed towards 'young seniors' (Chart A). In 1996, 65 to 69 year-olds accounted for 59% of employed seniors, and 70 to 74 year-olds made up an additional 25%. Nevertheless, close to 40,000 individuals (16%) aged 75 and over reported being employed.

**Chart A: Few seniors continued to work beyond their mid-70s.**



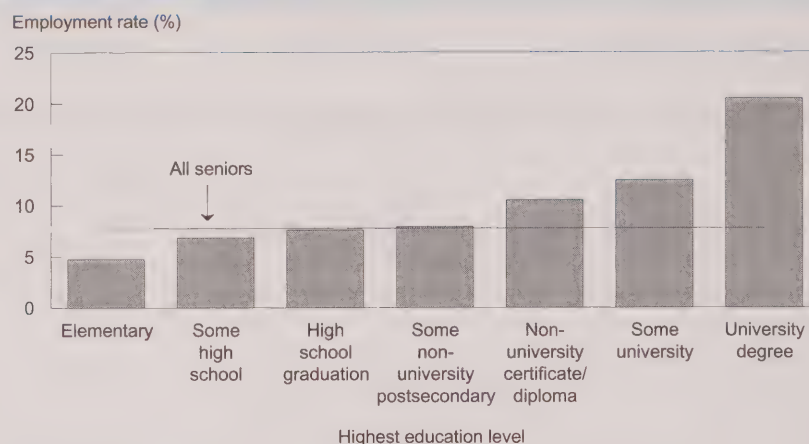
Source: 1996 Census of Population

The following sections examine the characteristics of working seniors, and offer some reasons why they may have chosen to continue working.

### Better-educated seniors are more likely to be working

Highly educated Canadians are much more likely than those with less schooling to continue working beyond the expected age of retirement (Chart B). In 1996, 1 in 5 seniors with a university degree was employed. In sharp contrast, less than 1 in 20 seniors with an elementary school education (grade 8 or less) had a job. The rates for those with intermediate levels of education lay somewhere between these two extremes.

**Chart B: One in five seniors with a university degree continued to work.**



Source: 1996 Census of Population

Seniors, in general, possess less education than persons in younger age groups. For example, 37% of seniors had, at most, an elementary school education, compared with only 8% of the population aged 15 to 64 (Table 2). Nevertheless, working seniors were, on average, better educated than others in their age group. Almost one-quarter (23%) of employed persons 65 and over had at least some university education, compared with only 10% of seniors who were not employed. At the other end of the spectrum, 44% of working seniors reported having had, at most, an elementary or partial secondary school education, compared with 63% of those who were either unemployed or not in the labour force.

Jobs requiring higher levels of education are often more intellectually challenging and less physically demanding than those with lower educational requirements—factors

which may contribute to the observed differences. Furthermore, because work requiring higher or specialized education is generally associated with better remuneration, the opportunity cost of retirement may be greater, on average, for people performing these jobs than for seniors with less schooling. Also, people with advanced levels of education (such as medical doctors, other occupations requiring professional degrees, and PhD degree holders) generally begin their careers later—in their late 20s or early 30s. Some of them may choose to work longer to accumulate the savings required to ensure a desired lifestyle after they stop working. Indeed, such occupations exhibit a different career age structure than the types of jobs generally held by people who possess only a high-school or college diploma (Kaufman and Spilerman, 1982).<sup>3</sup>



**Table 2: Educational attainment of seniors by labour force status**

	Seniors 65 and over						Population 15 to 64
	Population		Employed		Not employed	Employment rate	
	'000	%	'000	%	%	%	%
<b>Total</b>	<b>3,280</b>	<b>100.0</b>	<b>255</b>	<b>100.0</b>	<b>100.0</b>	<b>7.8</b>	<b>100.0</b>
Elementary	1,208	36.8	58	22.5	38.0	4.8	7.9
Some high school	809	24.7	56	21.7	24.9	6.9	22.4
High school graduation	340	10.4	26	10.1	10.4	7.6	15.0
Postsecondary, non-university							
Without certificate or diploma	128	3.9	10	4.0	3.9	7.9	7.0
With certificate or diploma	444	13.5	47	18.3	13.1	10.5	22.8
Trade certificate or diploma	133	4.0	14	5.3	3.9	10.2	3.6
Other certificate or diploma	312	9.5	33	13.0	9.2	10.7	19.1
Postsecondary, university							
Some university	156	4.8	19	7.6	4.5	12.5	10.5
University degree	196	6.0	40	15.7	5.2	20.5	14.5

Source: 1996 Census of Population

## Self-employed seniors

Working seniors were almost four times more likely to be self-employed than their younger counterparts. In 1996, 46% of employed persons 65 and over were self-employed, compared with only 13% of workers aged 15 to 64 (Table 3).<sup>4</sup> Most of these seniors (57%) were working owners of unincorporated businesses without paid help. Working seniors were also somewhat more likely than younger people to report unpaid family work (2.2% versus 0.5%, respectively).

Self-employment and, to a lesser extent, unpaid family work, may be popular among older workers because it allows more independence and flexibility of work scheduling. In some cases, a person may have been self-employed for many years, and is simply continuing to work beyond age 65 at the same or reduced pace<sup>5</sup> for financial<sup>6</sup> or other reasons.

Although seniors were more likely than younger workers to be self-employed, the majority of seniors (51%) were employees. In comparison, almost 9 in 10 employed 15 to 64 year-olds were employees (Chart C).

Class of worker and occupation are strongly related. For example, common occupations among the self-employed include farming, managing a retail business, and sales or service jobs (Marshall, 1999). Many

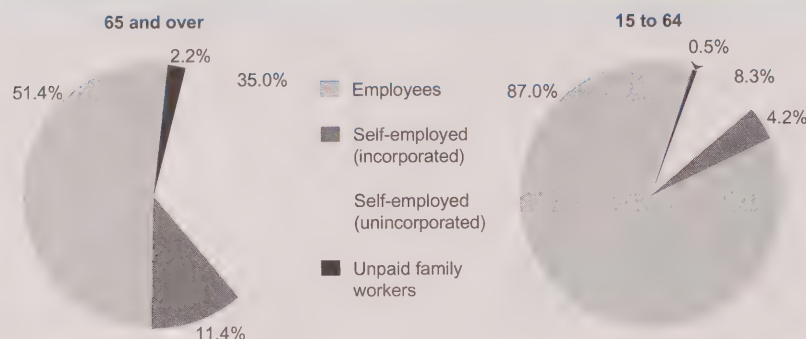
**Table 3: Employed seniors by class of worker**

	Age		
	65 and over		15 to 64
	'000	%	%
<b>Total employed</b>	<b>255</b>	<b>100.0</b>	<b>100.0</b>
Employees	131	51.4	87.0
Self-employed	118	46.4	12.5
Incorporated	29	11.4	4.2
With paid help	16	6.3	2.7
Without paid help	13	5.1	1.5
Unincorporated	89	35.0	8.3
With paid help	22	8.6	2.5
Without paid help	67	26.4	5.8
Unpaid family workers	6	2.2	0.5

Source: 1996 Census of Population

professionals such as doctors, lawyers and architects are also self-employed. On the other hand, most people in teaching and nursing occupations are employees with employer-sponsored pension plans that permit retirement before 65.<sup>7</sup> In some occupations held by employees (for example, pilots and firefighters), early retirement is required or strongly recommended (see *Job tenure*).

**Chart C: Working seniors were much more likely than younger workers to be self-employed.**



Source: 1996 Census of Population

### Seniors rarely seen in certain occupations

The age distribution of workers in specific occupations is a function of many factors, some working in tandem and others in conflict. The physical demands of some jobs determine a person's ability to perform the required tasks. Since physical characteristics (such as eyesight, reflexes, strength, and manual dexterity) deteriorate with age, occupations with physical requirements tend to be filled by younger workers. Such occupations include professional athletes (none reported over the age of 65), air traffic controllers (fewer than 20 of 4,205 were 65 and over), ambulance attendants and other paramedics (30 of 13,245), underground miners (70 of 14,205), sawmill machine operators (80 of 14,620), material handlers (380 of 117,235), and cashiers (1,105 of 250,120).

Some jobs require a high educational attainment, specialized skills, or knowledge of computer or other technologies. Since working seniors as a group tend to have less schooling than their younger coun-

terparts, they may be less likely to fill such jobs. For example, in 1996 only 25 of 16,240 computer engineers were aged 65 and over, as were 40 of 9,105 biological technologists and technicians.

Also, the retirement rules of many employer-sponsored pension plans are structured so that workers in some occupational groups are encouraged to retire at 65 or even earlier through the provision of generous retirement benefits. These groups include police officers (only 70 of 55,005 were 65 and over in 1996), military personnel (125 of 49,145 non-commissioned soldiers in infantry, airborne and maritime units classified to *other ranks, Armed Forces*), and teachers (690 of 226,105 elementary school teachers and counsellors).

Finally, labour market supply and demand shifts for economic or other reasons, can shape the age structure of an occupational group, since the need for workers does not remain constant over time. Long-term provincial and federal government cutbacks have skewed the age distribution of workers in nursing, teaching and other occupa-

tions. The ongoing discovery and implementation of new technologies has created new occupations, while obsolete ones have disappeared. In recent decades, globalization, combined with the shift from a goods-producing to a services-producing economy, has also left its stamp on the Canadian labour market, and in turn has affected the supply and demand for senior workers.

### Common fields of work for seniors

Twenty occupations account for half of total employment among workers aged 65 and over (Table 4).<sup>8</sup> Farmers and farm managers alone made up 17.7% of this total, with 45,205 employed seniors in 1996. Although a large majority (8 in 10) of these workers were men, farming and farm management was also the number one occupation reported by senior women. In addition, seniors were relatively common among general farm workers (2.8%—ranking fourth for both sexes combined). Almost as many women as men performed general farm work.

Given that most farmers are self-employed (8 in 10) and that self-employment is common among seniors, it is to be expected that many farmers and farm workers would be 65 and over. Moreover, "Because farmers usually live where they work, they tend to stay active on their farms longer than others in the labour force, even if they choose to scale back the extent of their operations and enter semi-retirement. In addition, some farmers remain involved in farming with their adult children, while others may enter agriculture as a hobby after retiring from the general labour force" (Statistics Canada, 1999).<sup>9</sup>



**Table 4: Top 20 occupations for employed seniors**

	Both sexes		Men	Women
		%		
<b>Total employed</b>	<b>255,200</b>	<b>100.0</b>	<b>174,700</b>	<b>80,500</b>
Farmers and farm managers	45,205	17.7	37,175	8,030
Retail salespersons and sales clerks	9,155	3.6	4,515	4,640
Janitors, caretakers and building superintendents	7,430	2.9	5,490	1,940
General farm workers	7,205	2.8	3,940	3,270
Retail trade managers	6,420	2.5	4,650	1,775
Security guards and related occupations	4,880	1.9	4,320	560
Bookkeepers	4,570	1.8	885	3,680
Accounting and related clerks	4,540	1.8	1,460	3,075
Sales representatives, wholesale trade (non-technical)	4,495	1.8	4,015	480
Secretaries (except legal and medical)	4,305	1.7	185	4,120
Real estate agents and salespersons	3,410	1.3	2,375	1,035
General office clerks	3,380	1.3	815	2,565
Babysitters, nannies and parent's helpers	3,225	1.3	450	2,775
Ministers of religion	3,010	1.2	2,825	185
Property administrators	2,880	1.1	1,835	1,040
Financial auditors and accountants	2,820	1.1	2,220	600
General practitioners and family physicians	2,820	1.1	2,560	260
Light duty cleaners	2,565	1.0	595	1,970
Senior managers—goods production, utilities, transportation and construction	2,520	1.0	2,335	180
Truck drivers	2,345	0.9	2,335	10
All other occupations	128,025	50.2	89,715	38,310

Source: 1996 Census of Population

Note: Based on the 1991 Standard Occupational Classification (unit group level). Data may not add to totals because of random rounding to a multiple of 5.

Nevertheless, since World War II, the Canadian farm population and the number of farms have both fallen dramatically, while average farm size has increased. In 1941, the farm population exceeded one-quarter of the total population; by the mid-1990s, it had shrunk to a mere 3% (Statistics Canada, 1997). This long-term trend would suggest fewer older farmers in the near future. However, a strong countervailing trend—Canada's aging population—is also evident in the farming population. Seniors accounted for 8.3% of people living on farms in 1996, compared with 5.9% in 1971. And in 1996, about one in three farm operators was at least 55.

Farmers aged 65 and over were more likely to be self-employed if they were men (89% compared with 68% of women); 9 in 10 of these farmers were unincorporated. Although 20% of women reported themselves as employees, this may be a function of tax law, which allows owners of unincorporated businesses to claim a spousal employee's wages as a tax deduction.<sup>10</sup>

Many seniors worked in a sales occupation of some sort, such as retail sales (the second most popular type of job, accounting for 3.6% of total employment in this age group), non-technical wholesaling

(1.8%), or real estate (1.3%). Retail trade management was also popular (2.5%). Just over half of retail salespersons were women (51%), while men were the norm among wholesalers (89%), real estate agents (70%) and retail trade managers (72%). Most of the workers in these jobs were employees—with the exception of retail trade managers, who were more likely to be self-employed.

The third most common occupation group for seniors was janitors, caretakers and building superintendents (2.9%)—three in four were men and most were in paid jobs. Related occupations included property administration (1.1%) and light duty cleaning (1.0%). About 6 in 10 property administrators were men, and over half were self-employed. In contrast, 77% of light duty cleaners were women, and most were employees.

Seniors working at office jobs, particularly as bookkeepers, accounting and related clerks, secretaries (except legal and medical), and general office clerks, accounted for 6.6% of employed seniors. Four in five of these jobs were performed by women and most were paid.

Seniors in professional occupations were most likely to be religious ministers (1.2%), financial auditors and accountants (1.1%), or general practitioners and family physicians (1.1%). Most of these jobs require a high or specialized education and tended to be occupied by men (94% of ministers, 79% of auditors and accountants, and 91% of family physicians). While the vast majority of ministers were employees (91%), two in three financial workers and three in four physicians were self-employed—most of them unincorporated.

The remainder of the top 20 occupations were rather disparate: security guards (ranking sixth in popularity); babysitters, nannies and parent's helpers; senior managers in goods production, utilities, transportation and construction; and truck drivers. Women did most of the babysitting (86%), while men dominated the other occupations (89% of guards, 93% of managers, and virtually all truckers). Almost half of the managerial jobs involved self-employment; most others were paid.

### Jobs with a high concentration of seniors

While the occupations most favoured by seniors have been noted above, older workers actually account for a very low proportion of total employment in the majority of these jobs.

In 22 occupations, however, at least 6% of the workforce was made up of men or women aged 65 and over (Table 5).<sup>11</sup> In 6 of these, more than 1 in 10 workers were seniors. Judges topped the list—1 in 5

was at least 65 years old (480 of 2,285). Since judgeships are usually conferred upon people with a great deal of experience in the legal profession, judges would naturally be older on average than workers pursuing other careers.

Two other occupational groups in the legal domain also had high concentrations of seniors: legislators (11.6% of these individuals were at least 65), and court officers and Justices of the Peace (8.2%). The official retirement age of senators is 75, and many federal, provincial and municipal legislators work well beyond age 65.

Next to judges, the occupations most likely to accommodate older workers were farming and farm management (19.8% were 65 and over), and trapping and hunting (17.6%). Since few people today earn a living through trapping and hunting (only 1,620 in 1996), it is not surprising that so many of them were seniors.

**Table 5: Occupations with a high concentration of seniors**

	Employed seniors 65 and over			Total employment (all ages)	Seniors' share of total %
	Both sexes	Men	Women		
Judges	480	465	10	2,285	21.0
Farmers and farm managers	45,205	37,175	8,030	227,915	19.8
Trappers and hunters	285	225	60	1,620	17.6
Ministers of religion	3,010	2,825	185	24,930	12.1
Legislators	760	630	130	6,535	11.6
Other religious occupations	875	465	405	7,955	11.0
Painters, sculptors and other visual artists	1,270	680	590	12,790	9.9
Property administrators	2,880	1,835	1,040	29,870	9.6
Court officers and Justices of the Peace	270	200	70	3,300	8.2
Jewellers, watch repairers and related occupations	335	310	20	4,295	7.8
Specialist physicians	1,625	1,485	145	21,445	7.6
General practitioners and family physicians	2,820	2,560	260	37,465	7.5
Writers	1,300	820	485	17,895	7.3
Security guards and related occupations	4,880	4,320	560	69,780	7.0
Denturists	105	95	10	1,625	6.5
Optometrists	210	205	0	3,380	6.2
Shoe repairers and shoemakers	175	165	10	2,855	6.1
Funeral directors and embalmers	225	205	20	3,685	6.1
Real estate agents and salespersons	3,410	2,375	1,035	56,255	6.1
Accommodation service managers	1,460	895	570	24,195	6.0
Agricultural and related service contractors and managers	220	195	25	3,650	6.0
General farm workers	7,205	3,940	3,270	119,770	6.0

Source: 1996 Census of Population

Note: Based on the 1991 Standard Occupational Classification (unit group level). Data may not add to totals because of random rounding to a multiple of 5.



## Data source and definitions

The **Census of Population** is conducted every five years to gather demographic, social, economic and cultural information on Canadians. Most households (80%) receive the short form, which asks for basic information only. The remaining 20% receive the long form, which asks these same questions plus more detailed ones, including labour market activities during the week prior to enumeration as well as during the previous year. The 20% sample information is later weighted to represent all Canadians. This article uses the 1996 Census of Population, carried out on May 14 of that year.

Institutional residents living in collective dwellings such as nursing homes and penal institutions are excluded from the labour force. Unpaid household activities and volunteer work are excluded from the definition of work. Persons in the **labour force** were either employed or unemployed during the week preceding the census.

The **employed** are persons aged 15 and over who, during the week preceding the census, worked for pay (earned wages, a salary, tips, or commissions; were paid in kind; or served in a religious order or the Armed Forces); or worked for profit in their own business, farm or professional practice; or worked without pay in a family farm or business (unpaid family workers). Also included are persons who were temporarily absent from their job or business for the entire week because of vacation, illness, a labour dispute at work, maternity leave, bad weather, fire, family responsibilities, or some other reason.

The **unemployed** are persons aged 15 years and over, excluding institutional residents, who were without paid work and were available for work during the week preceding the census and who actively looked for work in

the preceding four weeks, or were on temporary layoff and expected to return to their job, or had a definite arrangement to start a new job within four weeks.

The **employment rate** is the number of employed persons expressed as a percentage of the relevant population.

The **participation rate** is the percentage of the population in the labour force.

The **unemployment rate** is the number of unemployed persons as a percentage of the number of people in the labour force.

**Class of worker** indicates whether a person is an *employee* (that is, working for a wage or salary, a commission, or payment in kind); *self-employed* on a farm, in a business, or in a professional practice (either incorporated or unincorporated, with or without paid help); or an *unpaid family worker* (that is, a person 15 years of age and over who works without pay on a farm or in a business owned or operated by a family member living in the same household).

**Full-time** workers are those who reported working 30 hours or more per week during most of the weeks that they were employed. **Part-time** workers worked less than 30 hours per week. (In the case of people who had more than one job during the same week, the hours spent at all jobs were combined.) Persons in full-time employment for part of 1995 and in part-time employment for another part were asked to report information for the job at which they worked the most weeks.

Ministers of religion and workers in other religious occupations complete the top six grouping of jobs with a large presence of seniors (12.1% and 11.0% of their respective workforces). Although some have been ministers for many years, others turn to this vocation after leaving a former career. It is quite common for religious ministers to work into their seventies as they continue to conduct religious services and pursue scholarly interests.

Two occupational groups stand out as possible artefacts of data collection practices: painters, sculptors, and other visual artists; and writers. In 1996, the census identified 1,270 seniors as employed artists, accounting for 9.9% of all people in this occupational group; similarly, 1,300 seniors were employed as writers (7.3% of the total). However, many artists or writers must take on a second job to make ends meet. If the usual weekly hours worked at the second job exceed those spent as an artist or writer, the second job will be recorded as the main job. This means that

the number of people under age 65 classified as artists and writers in census tabulations may be underestimated; in this case, the concentration of seniors would be overestimated.

An added complication is that the distinction between a professional artist or writer and an amateur can be difficult to make. Many individuals pursue an artistic interest for years as a hobby. A hobby that does not provide income is not considered employment. In some cases, a person retires from a lifelong career and converts what was once a hobby into a second career, which then earns income and is therefore considered employment. Artists and writers who are able to earn a living at their career during pre-retirement years are apt to continue doing so long after age 65, unless health problems intervene.

Several medical occupational groups also feature relatively high concentrations of seniors: physicians (both specialists and general practitioners), denturists, and

**Table 6: Employed seniors working full time or part time in 1995**

	Employed in 1996*	Mainly full-time in 1995	Mainly part-time in 1995
		'000	
65 and over	242	141	101
Men	167	105	61
Women	76	36	40
65 to 69	146	90	56
Men	99	67	32
Women	47	23	24
70 to 74	60	32	28
Men	42	24	18
Women	18	8	10
75 to 79	24	13	11
Men	17	10	8
Women	7	3	4
80 and over	12	6	6
Men	9	4	4
Women	4	2	2
15 to 64	12,707	10,064	2,642
Men	6,852	6,005	846
Women	5,855	4,059	1,796

Source: 1996 Census of Population

\* Refers to persons employed the week before the census who also worked at some time in 1995 (that is, 13,000 persons who did not work at all in 1995 are excluded).

optometrists. Other notable occupations popular among seniors include jewellers and watch repairers, shoemakers and repairers, and funeral directors and embalmers.

### Male versus female jobs

The division of labour among today's seniors remains traditional. Specific occupations tend to be dominated by men (for example, judges and religious ministers) or by women (secretaries and babysitters). These patterns likely reflect the social environment of these seniors when they were school-aged and, later, when they entered the job market—years before affirmative action programs and anti-discrimination legislation. As younger Canadians age and enter their senior years, these jobs will likely become less polarized.

### Most employed seniors work full time

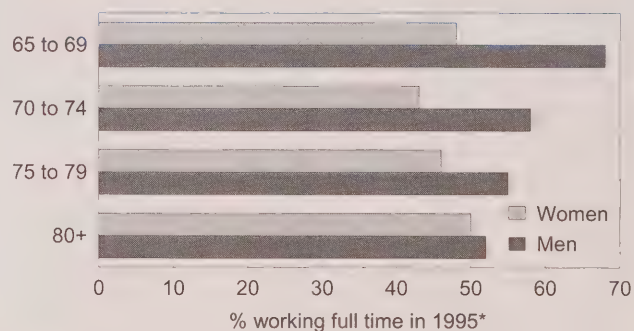
The majority (58%) of the 242,200 seniors who were employed during the census reference week and who also had worked in 1995 reported working mainly full

time that year.<sup>12</sup> Nevertheless, this percentage was significantly less than that of workers aged 15 to 64 (79%).<sup>13</sup> Almost two in three men 65 and over worked mainly full time (63%), compared with only 47% of women. The comparable figures for persons 15 to 64 were 88% and 69% (Table 6).<sup>14</sup>

The proportion of employed men 65 and over who worked full time dropped with age (Chart D). The biggest drop in 1995 occurred between the 65-to-69 and 70-to-74 age groups (from 68% to 58%). But even among those aged 80 and over, more than half worked mainly full time (52%). The proportion of older women working full time by age group was more stable, fluctuating around that for all senior women (47%).

Seniors who were working mainly full time in 1995 were somewhat more likely to be self-employed than those working part time (49% versus 43%). The proportion who were self-employed tended to rise with age, peaking at 64% among those aged 75 to 79 and working mainly full time, and 56% among those aged 80 and over and working mainly part time.

Over half of working men 65 and over were self-employed, working either mainly full time (54%) or part time (52%). Women were much less likely to be self-employed, particularly those who worked mainly part time—only 29%, compared with 36% who worked mainly full time.

**Chart D: At older ages, the proportion of men working full time approached that of women.**

Source: 1996 Census of Population

\* Refers to seniors who were employed the week before the census and who worked mainly full time in 1995. Persons who did not work at all in 1995 are excluded.



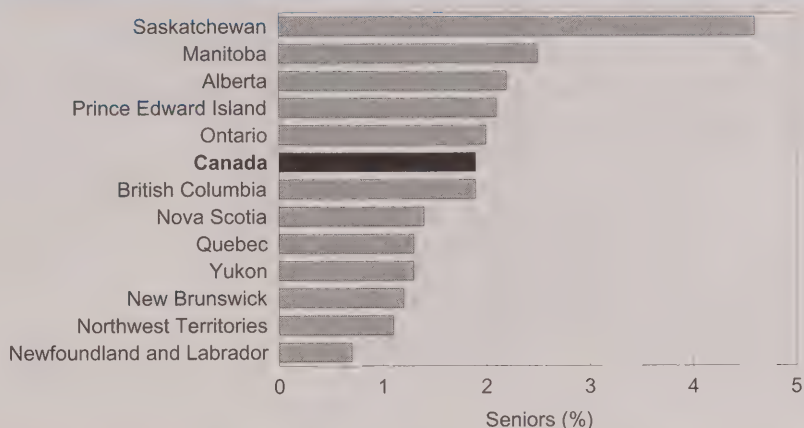
Since the incidence of part-time work among employed seniors was double that of younger workers (42% versus 21%), it would appear that shorter workweeks may in some cases ease the transition into retirement. For example, a person may continue to work for the same employer, but at a reduced pace, for a few years immediately preceding retirement. Another person may retire from a full-time job with a long-time employer to work part time in a similar occupation (for example, a long-distance trucker may switch to local bus driving), or in a job that is less physically demanding. The purpose of the part-time job may be to supplement pension income or to occupy some of the day. Some retirees also have more time for a hobby that now generates income.

On the demand side, many employers need the flexibility offered by part-time workers to meet labour demands that may fluctuate daily, weekly, or seasonally (such as Christmas)—for example, restaurant workers, bus drivers, and retail salespersons.

### Older workers are more common on the Prairies

While 1.9% of the national workforce was 65 and over, the representation of seniors in the workforce varied considerably by province, reflecting their different economies (Chart E). Given the high proportion of working seniors in farming occupations, working seniors were more common in provinces where these jobs account for a relatively large segment of the workforce<sup>15</sup> and the agricultural sector is a significant component of the economy.<sup>16</sup>

**Chart E: In Saskatchewan, seniors accounted for a relatively high proportion of total employment.**



Source: 1996 Census of Population

Indeed, the highest concentration of seniors in the workforce was found in Saskatchewan (4.6% of total employment), followed by Manitoba (2.5%), Alberta (2.2%), and Prince Edward Island (2.1%). At the other end of the scale, relatively few seniors were working in Newfoundland and Labrador (only 0.7%), a reflection perhaps of its persistently high rates of unemployment.<sup>17</sup>

Similarly, the employment ratio of seniors was by far the highest in the Prairie provinces, particularly Saskatchewan where 15.8% of seniors (almost one in six) had jobs; Alberta was close behind, at 12.3%. In contrast, only 2.4% of seniors living in Newfoundland and Labrador had jobs.<sup>18</sup>

The proportion of self-employed seniors was particularly low in Quebec—only 35% (Chart F). It was highest in Saskatchewan, where 7 in 10 seniors were self-employed, and notably high in Alberta and Manitoba (over 55%). The propor-

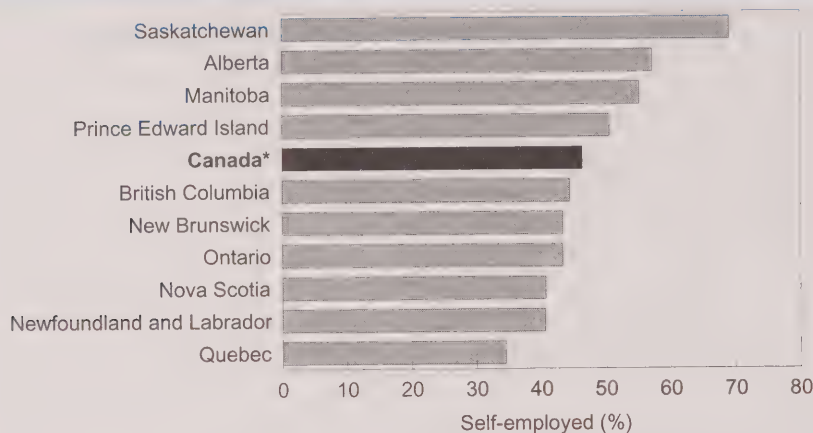
tion of the senior workforce accounted for by unpaid family workers was also high in these three provinces: 4.6% in Saskatchewan, 3.3% in Alberta and 3.0% in Manitoba (most of this unpaid labour would have been farm-related).

### Summary

This article provides an overview of the demographic and job characteristics of people who continue working beyond age 65—the traditional age of retirement. Characteristics that could lead younger Canadians to become working seniors include advanced education, self-employment, and an occupation (such as farming, accounting or sales) that lends itself to working past 65, either full time or part time.

In recent years, more men and women have continued to work beyond age 65. This reflects the growing popularity of alternative work arrangements such as

**Chart F: The proportion of working seniors who were self-employed varied greatly by province.**



Source: 1996 Census of Population

\* Includes Yukon and the Northwest Territories.

self-employment and part-time work, the rising educational attainment of Canadians generally, the increased labour market participation of women, and the proliferation of new jobs based on

innovative technologies requiring intellectual as opposed to physical capabilities.<sup>19</sup>

In the coming decades, Canada's large, well-educated and aging baby-boom cohort will add fuel to

this trend (the oldest boomers will reach age 65 in 2010). Consequently, it seems very likely not only that working seniors will account for a substantial proportion of the workforce in the near future, but also that they may become the rule rather than the exception.

## Perspectives

### Notes

1 The 1996 Census of Population was carried out on May 14<sup>th</sup> of that year. Respondents were asked if they had worked during the week prior to enumeration.

2 For example, at the time of the 1996 Census, 77% of women (and 91% of men) aged 25 to 54 were in the labour force. In contrast, monthly data obtained from the Labour Force Survey for May 1996 (these data were not collected in the 1996 Census) show only 36% of 25 to 54 year-old women (but 97% of men) in the labour force. (This cohort would have aged to between 55 and 84 in 1996.)

## Job tenure

The tenure of the last job held prior to retirement is one of the most important variables influencing the timing of retirement (Gower, 1997). Employees with a short job tenure tend to retire later than those who have worked more years at the same job. For example, from 1991 to 1995, employees in the public sector (including health, education and public administration) with a job tenure of less than 20 years retired at a median age of 62.1, compared with 58.6 for those with a tenure of 20 years or more. The median retirement age among employees in the private sector exhibited the same pattern: 64.6 (tenure less than 20 years) versus 61.3 (tenure of at least 20 years).

These observed patterns may arise, in part, because people working for an employer that provides a pension plan will usually be entitled to better benefits the longer they keep working for that employer. Also, companies providing pension plans may be more stable (that is, more likely to stay solvent and avoid employee layoffs) and have a larger complement of employees—which in turn translates into longer tenure. The presence of employer-sponsored pension plans has also been linked with higher retirement incomes (Gower, 1995).

As for the self-employed, the situation was quite different. The median retirement age was younger among self-employed workers whose job tenure immediately prior to retirement was less than 20 years (64.6) than it was among those with a tenure of at least two decades (65.8). This pattern reversal suggests that the retirement decisions of self-employed workers may be based on different criteria. For example, some self-employed workers may postpone retirement because they derive enjoyment from being their own boss; others may need to keep working because of insufficient retirement pension income. Also, self-employment is more common in some industries and occupations than in others, and their associated job characteristics may affect the timing of retirement.

Unfortunately, the effects of job tenure on the working patterns of seniors could not be examined in this study because job tenure was not asked in the 1996 Census.



3 Highly educated workers are also more likely to retire early than those with less schooling. This apparent contradiction may arise in part because many early retirees were formerly employed in the public sector—particularly in public administration, educational services, communication and utilities industries, and health care and social services. These industries are associated with employer-sponsored pension plans that enable employees to retire before they become eligible for Canada or Quebec Pension Plan benefits (Kieran, 2001).

4 The self-employed with incorporated businesses are often treated as employees, since they are deemed to work for the corporate entity. In this article, however, they are considered to be self-employed—a more meaningful description of their working conditions.

5 The volume of work performed by seniors can be approximated using the full-time/part-time variable, which is examined in the section *Most employed seniors work full time*.

6 Some self-employed seniors may be obliged to keep working to ensure an adequate standard of living. For example, self-employed workers do not benefit from employer-sponsored pension plans, unless they are working owners of incorporated businesses that offer such plans.

7 A similar relationship exists between retirement age, class of worker, and industry. For example, using the Labour Force Survey, Kieran (2001) showed that workers in the agricultural sector, who are primarily self-employed, were the least likely to retire early. In contrast, industries with the highest early retirement rates also had the highest proportion of public-sector workers—who are employees.

Gower (1997) also showed class of worker to be an important factor in the timing of retirement. The self-employed tended to retire later than employees; and the self-employed with unincorporated businesses and no employees retired last (based on Labour Force Survey data).

8 These statistics were compiled by unit group—the most detailed level of disaggregation in the 1991 Standard Occupational Classification, which contains a total of 514 unit groupings (Statistics Canada, 1993).

9 As well, more than half (53%) of seniors engaged in unpaid family work in 1996 were doing farm work. And almost three in four (72%) unpaid family farm workers were women (Statistics Canada, 1999).

10 This law was introduced in 1980. Prior to that time, the deduction was available only to owners of incorporated businesses (Duchesne, 1989).

11 The occupations common to both Tables 4 and 5 are farmers and farm managers, ministers of religion, property administrators, general practitioners and family physicians, security guards, real estate agents, and general farm workers.

12 A small proportion (5%) of the 255,200 seniors who had a job the week before the 1996 Census were not employed at all in 1995. This was also the case for 3% of the 13.1 million 15 to 64 year-olds. Many reasons in addition to job loss followed by long-term unemployment could account for this type of labour market behaviour—for example, a lengthy vacation or illness. (These absences would have been unpaid. People who were on *paid* vacation or sick leave or involved in a labour dispute are considered employed.) Among younger workers, school attendance or unpaid maternity leave could also be reasons for not having worked in 1995.

13 Kieran (2001) also shows that early retirement rates are higher among full-time than among part-time workers. Forty-six percent of recent retirees who worked full time prior to retirement left work before age 60, compared with 30% of those who worked part time. These differences may arise because full-time workers tend to earn more (and consequently may be able to save more for retirement) and are more likely to enjoy employer-sponsored retirement benefits.

14 Full-time senior workers were more likely to be male than were full-time workers aged 15 to 64 (75% versus 60% in 1995). Although men also accounted for the majority of seniors who were working mainly part time that year (60%), younger workers employed less than 30 hours per week were much more likely to be female (68% of part-time workers aged 15 to 64).

15 According to the 1996 Census, the number of Canadians employed in agricultural and related services industries accounted for 3.1% of total employment nationally. This proportion differed substantially across the provinces. It was highest in Saskatchewan (16.3% of all persons employed and lowest in Newfoundland and Labrador (a mere 0.8%).

16 In 1996, agriculture and related services industries accounted for 1.9% of Canada's gross domestic product. This proportion varied widely across the provinces. It was highest in Saskatchewan (11.6%), followed by Manitoba (5.4%), Prince Edward Island (5.1%) and Alberta (3.2%). In contrast, agriculture accounted for only 0.4% in Newfoundland and Labrador, and 0.9% in British Columbia.

17 For example, according to the Labour Force Survey, the unemployment rate in Newfoundland and Labrador for persons aged 15 and over averaged 19.3% in 1996. In stark contrast, that same year unemployment rates averaged 6.6% in Saskatchewan, 6.9% in Alberta and 7.2% in Manitoba.

18 The employment rates for the other provinces were: Prince Edward Island, 8.1%; Nova Scotia, 4.8%; New Brunswick, 4.3%; Quebec, 5.2%; Ontario, 8.3%; Manitoba, 9.1%; and British Columbia, 7.5%. High rates were also found in the territories, but these were based on sparse and unreliable data.

19. Between 1986 and 1996, the number of employed men 65 and over rose 16%, from 150,700 to 174,700. The number of women increased even more dramatically—up 30%, from 61,800 to 80,500.

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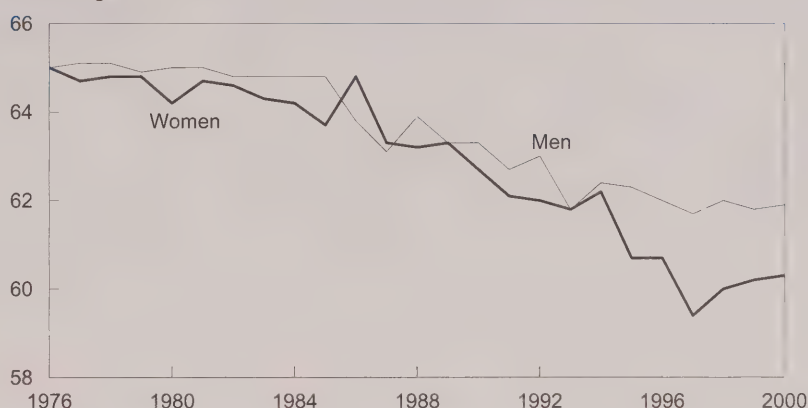
# Fact-sheet on retirement

## The age of retirement has stabilized in recent years

Over the past couple of decades, the age of retirement has changed dramatically.<sup>1</sup> The median age was close to 65 in the late 1970s and early 1980s. Starting in the mid-1980s, it declined considerably.

Between 1986 and 1993, the median retirement age declined more or less steadily. The sharp drop between 1986 and 1987 is likely explained by the lowering in 1987 of the minimum age at which one could draw benefits from the Canada Pension Plan—from 65 to 60. In 1988, retirement age increased, probably because most people wishing to take advantage of this early retirement option had done so the previous year. After 1988, however, the trend toward earlier retirement resumed until 1994, when retirement age increased slightly and then declined until 1997. After 1997, it increased again and then stabilized.

Median age of retirement



Source: Labour Force Survey

The retirement age fluctuations in the 1990s may reflect government cutbacks and corporate downsizing. The popularity of early retirement incentives as a tool for workforce adjustment may also have influenced recent retirement behaviour.

Over most of the past two decades, women retired slightly earlier than men, with the two sexes following a similar trend. There were exceptions, however. In 1986, for example, women retired later than men.

## Distribution of ages at retirement

This study looks at people who retired at any time during the five-year period at either end of the data series (1991 to 1995 and 1996 to 2000). Initially, the most popular age for retirement was between 60 and 64 (37% of retirees); at the end of the study period, it was still 60 to 64 but the number of retirees had decreased (31%).

The change is more noticeable, however, in the proportion of those retiring at younger and older ages. The percentage under age 55 nearly doubled, from 9% to 15%. The sample aged 55 to 59 increased from 24% to 27%. On the other hand, fewer people waited past age 65 (22% to 19%).

Not everyone joined this trend, however. About one person in 14 retiring in the 1990s waited until age 70 or later.

	1991 to 1995		1996 to 2000	
	'000	%	'000	%
<b>Total</b>	<b>613</b>	<b>100</b>	<b>673</b>	<b>100</b>
50 to 54	58	9	103	15
55 to 59	148	24	182	27
60 to 64	226	37	212	31
65 to 69	137	22	128	19
70+	43	7	48	7

Source: Labour Force Survey

## Measuring retirement

The Labour Force Survey (LFS) was designed to measure labour force activity at a certain point in time: one reference week each month. To provide a meaningful series on retirement, each survey month is scanned and everyone who claims to have retired in the past year is recorded. The month of retirement is taken to be the same as the month last worked. A list of retirees is then organized according to the *month in which they retired*, rather than the month of the survey. Special adjustments to the sampling weights produce an unbiased estimate of retirees.

Since very few people under 50 report retirement as a reason for leaving their job, only those who retired at 50 or over are included here.

For all retired people (except a few 'permanently unable to work'), information is gathered on the last job—specifically, industry, occupation, length of tenure, and employment class (employee or self-employed).

The data refer to the last job, but some people's last job may not be indicative of their careers. These people may have switched jobs shortly before retirement. For this

reason, those with brief job tenures are best considered a residual group—that is, representing people with a wide but unknown mix of work histories.

Respondents remain in the LFS sample for six consecutive months. For this study, however, only the response in the first month is used. This self-perceived retirement status is not updated thereafter, even though the respondent's situation may have changed after the first interview.

According to a preliminary study, a few retirees took jobs in the following five months. Many of these jobs were part-time, which may mean simply that the person had decided to fill in the time or to supplement a pension.

The majority of people over 50 who left the workforce gave reasons other than retirement for leaving the last job. The two most common ones were 'laid off' and 'sickness or disability'. A high percentage of this group re-entered the labour force within five months of the initial LFS interview. Many more likely found jobs later. In the context of the current exercise, those who remained out of the workforce would be missed from the analysis.



## Median age at retirement, and length and sector of employment

Many factors influence the timing of retirement. Among the most important are the type of last job and length of tenure.<sup>2</sup>

For workers overall, the median age of retirement declined from 62.2 to 61.0 over the study period. People employed in the public sector (which includes education, health and social services, and government), already the youngest to retire from 1991 to 1995, saw the greatest decline in median age (1.9 years, from 60.0 to 58.1). Employees in the private sector retired an average three years later than public sector workers at the beginning of the period, a gap that increased to nearly four years between 1996 and 2000 (61.8 versus 58.1).

Self-employed people, whose median age of retirement remained steady over the study period (65.0), retired later than employees. Industry accounts for much of the age difference between self-employed and employees.

How long one worked in a job prior to retirement seems to have a strong correlation with retirement age. This is not surprising. People who stay with one employer for a long time have an opportunity to build up substantial entitlements in a pension plan if one is available. Furthermore, employers offering good pension plans (for example, school boards, some large companies and governments) often provide longer tenure. As might be expected, early retirement is more prevalent in such workplaces. Employer pensions have also been linked with higher retirement incomes (Gower, 1995).

Between 1996 and 2000, workers with job tenure of 20 years or more retired more than two years earlier than those with under 20 years (60.0 versus 62.6). Among the self-employed, however, the opposite was true. On average, those with 20 years or more retired 2.6 years later (66.4 versus 63.8). This, combined with their slower rate of decline in median retirement age, suggests that self-employed workers reach the decision to retire in a very different manner.

Job tenure	Sector	1991 to 1995		1996 to 2000	
		'000	Median age	'000	Median age
<b>Overall</b>	<b>All retirees (aged 50+)*</b>	<b>613</b>	<b>62.2</b>	<b>673</b>	<b>61.0</b>
	Public employees	206	60.0	241	58.1
	Private employees	313	63.2	313	61.8
	Self-employed	88	65.0	114	65.0
<b>Less than 20 years</b>	<b>All retirees (aged 50+)*</b>	<b>264</b>	<b>64.1</b>	<b>279</b>	<b>62.6</b>
	Public employees	66	62.1	68	60.8
	Private employees	157	64.6	154	62.9
	Self-employed	39	64.4	57	63.8
<b>20 years or more</b>	<b>All retirees (aged 50+)*</b>	<b>347</b>	<b>60.8</b>	<b>392</b>	<b>60.0</b>
	Public employees	140	59.2	173	57.2
	Private employees	156	61.3	159	60.8
	Self-employed	49	65.8	57	66.4

Source: Labour Force Survey

Note: Job tenure and sector refer to last job prior to retirement.

\* Because unpaid family workers are not accounted for in the sub-categories but are included in the totals, numbers do not add to totals.

## Distribution of retirees by month of departure, 1996 to 2000

Not surprisingly, people favoured some months over others to retire. Two months stand out: June and December, with the former more popular. People who retired during the summer tended to be slightly younger than those who did so in autumn or winter. Little has changed over the last two decades. The patterns for men and women are similar, though women were more likely to retire in June. This may relate to the number of women retiring from teaching.

	Both sexes		Men		Women	
	%	Median age	%	Median age	%	Median age
<b>All months</b>	<b>100.0</b>	<b>61.0</b>	<b>100.0</b>	<b>61.8</b>	<b>100.0</b>	<b>60.1</b>
January	7.6	61.6	7.9	61.6	7.1	61.2
February	4.5	61.3	4.5	61.0	4.4	61.3
March	6.5	60.7	6.9	61.9	6.0	59.3
April	7.2	61.4	7.4	61.6	6.8	60.7
May	7.2	60.6	7.1	60.3	7.4	60.7
June	16.5	58.8	13.7	59.8	20.5	57.9
July	9.5	60.8	8.8	62.6	10.5	60.0
August	6.3	60.8	7.0	61.8	5.3	59.8
September	8.4	62.6	8.7	64.0	8.0	61.6
October	8.1	62.3	8.7	63.0	7.2	60.6
November	6.1	62.1	6.4	63.6	5.7	60.8
December	12.1	61.3	12.9	62.7	10.9	60.1

Source: Labour Force Survey

## Median age at retirement by industry, and change over time

Between 1996 and 2000, below average retirement ages were recorded in utilities; finance, insurance, real estate and leasing; educational services; health care and social assistance; information, culture and recreation; and public administration.

The greatest declines were found in industries with low retirement ages. In contrast, those recording relatively late retirement ages experienced the least decrease, except in trade industries.

Many factors are at play here. In particular, certain industries that were downsizing in the 1990s may have introduced early retirement programs (see *Appendix*).

Industry*	1991 to 1995	1996 to 2000	Change
	Median age	Median age	Years
<b>Industry*</b>	<b>62.2</b>	<b>61.0</b>	<b>-1.2</b>
<b>Goods-producing</b>	<b>62.9</b>	<b>62.6</b>	<b>-0.3</b>
Primary	64.6	65.3	0.7
Agriculture	65.8	68.8	3.0
Other	62.2	61.2	-1.0
Utilities	59.1	56.6	-2.5
Construction	64.7	63.3	-1.4
Manufacturing	61.9	61.6	-0.3
<b>Service-producing</b>	<b>62.0</b>	<b>60.4</b>	<b>-1.6</b>
Trade	64.4	62.6	-1.8
Transportation and warehousing	60.3	61.6	1.3
Finance, insurance, real estate and leasing	62.4	60.1	-2.3
Professional, scientific and technical	65.1	64.8	-0.3
Management, administrative and other	65.3	64.6	-0.7
Educational services	60.7	57.4	-3.3
Health care and social assistance	62.3	60.3	-2.0
Information, culture and recreation	60.7	59.6	-1.1
Accommodation and food services	64.9	64.0	-0.9
Other services	64.8	63.6	-1.2
Public administration	59.6	58.4	-1.2

Source: Labour Force Survey

\* According to last job prior to retirement.



## Median age at retirement by sex and education, 1996 to 2000

Men tended to retire slightly later than women (aged 61.8 versus 60.1). This difference held for people in most education groups except those with only a high-school diploma.

Changes in the LFS prevent a comparison of education groups over time but, in the 1990s at least, differences between those lacking high school graduation and those with higher education were much greater than differences between men and women. For example, people with a postsecondary certificate, diploma or degree retired more than three years earlier than those with eight years of schooling or less.

	Both sexes		Men		Women	
	'000	Median age	'000	Median age	'000	Median age
<b>Education</b>	<b>673</b>	<b>61.0</b>	<b>394</b>	<b>61.8</b>	<b>279</b>	<b>60.1</b>
0-8 years	99	64.4	71	64.7	28	62.6
Some secondary	116	61.9	70	62.6	46	61.1
High-school graduate	112	60.3	59	60.3	54	60.3
Postsecondary	224	60.8	119	61.7	104	59.9
University degree	123	58.7	75	59.8	47	56.9

Source: Labour Force Survey

## Median age at retirement by occupation, and change over time

All major occupation groups except occupations unique to primary industry showed declines in the median age of retirement.

In both periods, public sector occupations had the lowest retirement age.

Primary occupations had the highest age of retirement in both periods, and the gap widened in the later period.

	1991 to 1995	1996 to 2000	Change
	Median age	Median age	Years
<b>Occupation*</b>	<b>62.2</b>	<b>61.0</b>	<b>-1.2</b>
Management	62.2	60.2	-2.0
Business, finance and administrative	61.0	60.3	-0.7
Natural and applied sciences	60.7	60.2	-0.5
Health	62.1	60.8	-1.3
Social science, education, government service and religion	60.0	57.3	-2.7
Art, culture, recreation and sport	64.4	61.4	-3.0
Sales and service	63.7	61.8	-1.9
Trades, transport and equipment operators	63.1	62.6	-0.5
Occupations unique to primary industry	64.9	66.6	1.7
Occupations unique to processing, manufacturing and utilities	62.1	61.6	-0.5

Source: Labour Force Survey

\* According to last job prior to retirement.

## Median age at retirement by province

At the beginning of the study period, the gap between the highest median retirement age (64.2 in British Columbia) and the lowest (60.4 in Newfoundland and Labrador) was 3.8 years. In the 1996 to 2000 period, the gap widened to 6.6 years (64.6 in Saskatchewan and 58.0 in Newfoundland and Labrador).

While the majority of Canadians opted for earlier retirement, the drop in median age varied from only 0.4 years in New Brunswick to 2.4 in Newfoundland and Labrador. The other Maritime provinces experienced an increase in retirement age, as did Saskatchewan and Alberta.

Different factors influenced provincial findings. For example, in Saskatchewan, the prevalence of agriculture may help to explain the high and relatively stable retirement age. Further east, Quebec's lower-

	1991 to 1995		1996 to 2000		Change
	'000	Median age	'000	Median age	Years
<b>Canada</b>	<b>613</b>	<b>62.2</b>	<b>673</b>	<b>61.0</b>	<b>-1.2</b>
Saskatchewan	23	64.1	23	64.6	0.5
Alberta	50	62.9	56	63.7	0.8
Prince Edward Island	3	62.3	3	62.6	0.3
British Columbia	74	64.2	88	62.1	-2.1
Manitoba	29	62.3	26	61.7	-0.6
Ontario	260	62.3	256	61.6	-0.7
Nova Scotia	20	60.6	18	60.8	0.2
New Brunswick	15	60.7	18	60.3	-0.4
Quebec	129	61.0	176	59.4	-1.6
Newfoundland and Labrador	9	60.4	10	58.0	-2.4

Source: Labour Force Survey

ing of the minimum age of entitlement for the Quebec Pension Plan from 65 to 60 in 1984—three years before a similar move by the Canada Pension Plan—may have accelerated the trend to younger retirement in the province. For British Columbia, the picture is

complicated by province designation, which is based on where the person was living when surveyed (that is, after retirement). Migration to British Columbia after retirement, as well as migration patterns in general, may play a role (Monette, 1996).

## Perspectives

### ■ Notes

1 The available data series starts in 1991. Because it is necessary to look back one year to determine who retired, the most recent data available at writing were for people who retired in 2000.

2 The data relate to the retiree's last job. At least some of those with less than 20 years' tenure may have held a long-term job sometime earlier. If those jobs could also be measured, differences in retirement age between people with short and long job tenures would probably increase.

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## Appendix—Retirement patterns by industry\*

	1991 to 1995		1996 to 2000	
	'000	Median age	'000	Median age
<b>All workers (aged 50+)</b>	<b>613</b>	<b>62.2</b>	<b>673</b>	<b>61.0</b>
<b>Goods-producing</b>	<b>172</b>	<b>62.9</b>	<b>178</b>	<b>62.6</b>
Primary	39	64.6	37	65.3
Agriculture	24	65.8	24	68.8
Other	15	62.2	13	61.2
Utilities	10	59.1	12	56.6
Construction	32	64.7	34	63.3
Manufacturing	92	61.9	95	61.6
<b>Service-producing</b>	<b>439</b>	<b>62.0</b>	<b>492</b>	<b>60.4</b>
Trade	68	64.4	67	62.6
Transportation and warehousing	35	60.3	40	61.6
Finance, insurance, real estate and leasing	39	62.4	37	60.1
Professional, scientific and technical	15	65.1	24	64.8
Management, administrative and other	12	65.3	15	64.6
Educational services	66	60.7	102	57.4
Health care and social assistance	53	62.3	80	60.3
Information, culture and recreation	30	60.7	20	59.6
Accommodation and food services	20	64.9	16	64.0
Other services	24	64.8	26	63.6
Public administration	77	59.6	64	58.4
<b>Employees (aged 50+)</b>	<b>519</b>	<b>61.7</b>	<b>554</b>	<b>60.3</b>
<b>Goods-producing</b>	<b>135</b>	<b>61.8</b>	<b>135</b>	<b>61.3</b>
Primary	15	61.8	13	61.8
Agriculture	4	65.1	3	64.8
Other	12	61.2	10	60.7
Utilities	10	59.1	12	56.6
Construction	23	63.9	21	62.3
Manufacturing	87	61.8	90	61.6
<b>Service-producing</b>	<b>384</b>	<b>61.7</b>	<b>419</b>	<b>60.1</b>
Trade	52	64.3	51	62.3
Transportation and warehousing	32	60.2	35	60.9
Finance, insurance, real estate and leasing	33	62.4	30	59.6
Professional, scientific and technical	8	64.7	10	63.2
Management, administrative and other	9	65.3	9	64.7
Educational services	65	60.7	98	57.3
Health care and social assistance	49	62.2	73	60.2
Information, culture and recreation	28	60.2	19	59.2
Accommodation and food services	14	64.9	13	62.9
Other services	16	64.8	17	62.6
Public administration	77	59.6	64	58.4
<b>Self-employed (aged 50+)</b>	<b>88</b>	<b>65.0</b>	<b>114</b>	<b>65.0</b>
<b>Goods-producing</b>	<b>34</b>	<b>65.1</b>	<b>42</b>	<b>65.6</b>
Primary	21	65.8	24	68.3
Agriculture	18	66.3	21	69.2
Other	3	65.0	3	64.6
Construction	9	65.0	13	64.6
Manufacturing	5	64.8	5	62.2
<b>Service-producing</b>	<b>54</b>	<b>64.9</b>	<b>72</b>	<b>64.6</b>
Trade	16	65.2	16	64.2
Transportation and warehousing	3	64.9	5	64.8
Finance, insurance, real estate and leasing	6	62.2	7	65.8
Professional, scientific and technical	6	66.2	14	65.6
Management, administrative and other	3	64.8	7	63.9
Health care and social assistance	4	64.9	7	66.0
Accommodation and food services	6	64.3	3	64.9
Other services	7	65.6	8	64.6

Source: Labour Force Survey

Note: These categories describe the last job held prior to retirement. They may or may not reflect a person's lifetime work history.

\* Excludes some groups with too small a sample to provide a reliable estimate, so the groups will not add to total. Likewise, industries in the self-employed category exclude unpaid family workers.

# DISCOVER

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...when you need to see historical movements

...when you need labour-related data for a presentation or report

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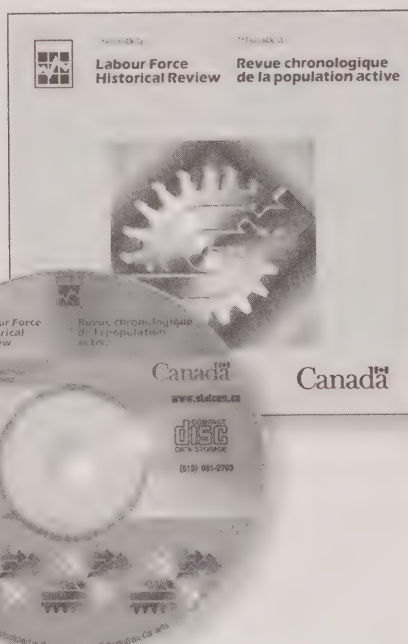
This easy-to-use CD-ROM, issued annually, lets you discover labour market patterns in seconds! Incorporating a user-friendly data browser, the **Labour Force Historical Review on CD-ROM** is an essential tool providing:

### Accurate, timely data...

- ✱ actual and seasonally adjusted data series
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- ✱ industry, occupation, wages, union membership, job tenure
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As researchers, economists, analysts, consultants and planners in both private enterprise and the public sector, you will value this comprehensive information resource for your labour-related questions, analysis or forecasting.

For more detailed information on this CD-ROM, visit our Web site at <http://www.statcan.ca/english/ads/71F0004XCB/index.htm>

The **Labour Force Historical Review on CD-ROM** (catalogue no. 71F0004XCB) is available for only \$195. In Canada, please add either GST and applicable PST or HST. Shipping charges: No shipping charges for delivery in Canada. For shipments to the United States, please add \$6. For shipments to other countries, please add \$10.

To order the CD ROM, CALL 1 800 267-6677, FAX 1 877 287-4369 or MAIL your order to Statistics Canada, Dissemination Division, Circulation Management, 120 Parkdale Avenue, Ottawa, Ontario, K1A 0T6, Canada. You may also order by E-MAIL: [order@statcan.ca](mailto:order@statcan.ca) or contact your nearest Statistics Canada Regional Reference Centre: 1 800 263-1136.



# What's new?

## *Recent reports and studies*

### ■ JUST RELEASED

#### ■ *Adult training*

Training for adults who are not in school declined slightly between 1992 and 1998, according to a new study. Men's participation in all types of training declined from 28% in 1992 to 26% in 1998, and the duration of their training fell from an average 42 hours per year to 35 hours. Women's participation fell from 29% to 26%, and the average duration dropped from 38 to 33 hours.

This report describes the incidence of training activity and the duration of training episodes during the 1990s among adult Canadians who were not full- or part-time students in an education program.

Training activity is more prevalent in large firms, in the public sector, and among workers in professional and managerial occupations. For example, a postsecondary education, a large employer and professional/managerial employment appear to positively affect training activity.

Adults decide to undertake further education or training for many reasons. Some may be motivated to develop their career or to retrain after a job change. Others may simply wish to upgrade their skills after an absence from the job market. Unlike formal schooling, which tends to be concentrated among the young, participation in training activity occurs at all ages throughout the life cycle.

The report *Adult Training in Canada: Snapshots from the Nineties* is available in the Spring 2002 issue of *Education Quarterly Review*, Vol. 8, no. 2 (Catalogue no. 81-003-XIE, \$16/\$51 or Catalogue no. 81-003-XPB, \$21/\$68). The full report is available from Human Resources Development Canada at [www.hrdc-drhc.gc.ca/arb](http://www.hrdc-drhc.gc.ca/arb).

For more information, contact Client Services, Culture, Tourism and the Centre for Education Statistics, at 1 800 307-3382 or (613) 951-7608; fax: (613) 951-9040; [educationstats@statcan.ca](mailto:educationstats@statcan.ca).

#### ■ *Trade/vocational and preparatory training*

In 1998-99, 240,000 students were enrolled in trade/vocational and preparatory training programs in community colleges, CEGEPs, and high schools in Quebec, down 4% from 1997-98, according to a new study. From 1995-96 to 1998-99, enrolment in these programs dropped 11%, although community college and CEGEP postsecondary enrolment generally rose.

Trade/vocational programs are designed to provide students with the basic knowledge needed to work in a particular occupation or trade. Included are pre-employment or pre-apprenticeship programs or courses, in-class instruction for registered apprentices, skill upgrading or courses to introduce workers to new technology in their field, and special or contract training.

Enrolment in trade/vocational programs fell from 1995-96 to 1998-99. The greatest decrease (-19%) was in registered apprenticeship in-class training. Enrolment in special and contract training programs fluctuated but changed little over the period.

The decrease in trade/vocational enrolment is partly the result of changes in entrance requirements, especially in the pre-employment or pre-apprenticeship programs and, consequently, in the way institutions report enrolment. In most provinces, many trade/vocational programs now require secondary school completion for admission—previously, Grade 10 or 11 was needed. Programs that require high school completion for admission are reported to the postsecondary community college survey rather than the trade/vocational survey.

Enrolment in preparatory training programs, aimed at developing general non occupation-specific skills, rose 11% in 1998-99. Despite the increase, enrolment remained 8% below its 1995-96 peak. The programs in this group consist of academic upgrading, job-readiness training, orientation, and language training.

All the preparatory training programs saw higher enrolment in 1998-99 compared with 1997-98. Job-readiness training and orientation programs led the way with a 33% gain. Only job-readiness and orientation programs gained from 1995-96 to 1998-99.

For more information, contact Client Services, Culture, Tourism and the Centre for Education Statistics, at 1 800 307-3382 or (613) 951-7608; fax: (613) 951-9040; [educationstats@statcan.ca](mailto:educationstats@statcan.ca).

### ■ *Literacy skills*

This study used Canadian data from the International Adult Literacy Survey to explore relationships between wages earned by workers whose education was higher or lower than that presumed to be required by their occupation.

The study concluded that employers were able to detect and reward differences in literacy skills within levels of schooling. In other words, literacy skills played a role in the level of pay workers received, although this role differed for men and women.

In addition, literacy skills were significantly related to the educational requirements of an individual's job.

Studies in several countries confirm that individuals with schooling beyond that implied by their occupational classification (over-education) do earn a positive income return to their 'extra' years of schooling. Similarly, individuals with less schooling than that implied by their occupational classification (under-education) earn less than individuals whose educational levels match those required by the job.

This pattern of differences in earnings is usually referred to as 'returns to over-education' and 'returns to under-education.' This study extends this analysis by incorporating measures of workers' literacy skills. It found that the return to under-education for both women and men was in large part a return to above-average literacy skills for their level of schooling. In addition, for men, the return to over-education was in large part a return to literacy skills that are above-average for their jobs.

The International Adult Literacy Survey was a 22-country initiative conducted from 1994 to 1998. Nine countries were surveyed in 1994, five in 1996, and the others in 1998. In every country, representative samples of adults aged 16 to 65 were interviewed and tested at home using the same literacy test. The main purpose was to find out how well adults used printed information to function in society.

The monograph *Literacy Skills, Occupational Assignment and the Returns to Over- and Under-education* (Catalogue no. 89-552-MIE, no. 9, free) is now available on Statistics Canada's Web site ([www.statcan.ca](http://www.statcan.ca)), and on Human Resources Development Canada's Web site ([www.hrdc-drhc.gc.ca/arb](http://www.hrdc-drhc.gc.ca/arb)). A paper copy (Catalogue no. 89-552-MPE, no. 9, \$10) is also available.

For more information, contact Client Services, Culture, Tourism and the Centre for Education Statistics, at 1 800 307-3382 or (613) 951-7608; fax: (613) 951-9040; [educationstats@statcan.ca](mailto:educationstats@statcan.ca).

### ■ *Demographic statistics*

The 2001 edition of *Annual Demographic Statistics* provides the most recent population estimates and projections up to 2006 by age group and sex, plus data on births, deaths and migrations. Information is grouped by province and territory, census metropolitan area, and census division; data on census families, and marriages and divorces, is also provided.

A CD-ROM, included with the publication, contains even more data. The historical time series includes population data back to 1971 for provinces and territories, and to 1986 for census divisions and census metropolitan areas. The CD-ROM includes population projections as well as animated age pyramids that illustrate the aging of the population.

*Annual demographic statistics, 2001* (Catalogue no. 91-213-XPB, \$125 including the CD-ROM, and an electronic version Catalogue no. 91-213-XIB, \$56 without the CD-ROM) is now available. For more information, contact Lise Champagne, Demography Division, at (613) 951-2320; fax: (613) 951-2307; [lise.champagne@statcan.ca](mailto:lise.champagne@statcan.ca).

### ■ *Farm incomes*

The first bulletin in the 1997-98 taxation data bulletin series, *Economic Overview of Farm Incomes*, a joint publication of Statistics Canada and Agriculture and Agri-Food Canada, is now available.



This bulletin presents farm financial information and analysis based on data from the Taxation Data Program and other agricultural surveys. The first bulletin provides an overview of all farms, with a detailed analysis of farm structure and financial performance of farms and farm operators, by revenue class and by province. Information on farm structure includes the distribution of farms, concentration of production, degree of specialization, and the physical characteristics of farms. Detailed financial information is provided on farm-level revenues, expenses, and net operating income before depreciation, as well as total operator income.

Bulletins 2 through 7 will present similar information for the major farm types in Canada: grain and oilseed, cattle, dairy, hog, poultry and egg, and horticultural farms. The final bulletin will present information on farm families' sources of income—both on-farm and off-farm.

*Economic Overview of Farm Incomes—All Farms*, Vol. 2, no. 1 (Catalogue no. 21-005-XIE, free) is now available on Statistics Canada's Web site ([www.statcan.ca](http://www.statcan.ca)). From *Our products and services*, choose *Free publications*, then *Agriculture*. For more information, contact the Client Services Unit, Agriculture Division, at 1 800 465-1991 or (613) 951-5027; fax: (613) 951-3868; [agriculture@statcan.ca](mailto:agriculture@statcan.ca).

### ■ *Justice-related professions*

A new report, *A Statistical Profile of Persons Working in Justice-related Professions in Canada, 1996*, uses census data from 1996 and 1991 to provide a statistical profile of the estimated 304,000 people who work in justice-related professions in Canada.

It contains a general description of characteristics such as age, highest level of schooling, average employment income, and employment status (full-time/part-time; full-year/part-year). In addition, it provides detailed information on certain groups, including women and men, Aboriginal people, visible minorities and immigrants.

In 1996, about 304,000 people, or about 2% of the labour force, worked in justice-related professions. Both figures were about the same in 1991. These professions include police, court officials (including judges), legal personnel (including lawyers), probation and parole officers, correctional service officers, and other protective services personnel such as security officers.

*A Statistical Profile of Persons Working in Justice-related Professions in Canada, 1996* (Catalogue no. 85-555-XIE, \$25) is now available. For more information, contact Information and Client Services, Canadian Centre for Justice Statistics, at 1 800 387-2231 or (613) 951-9023.

### ■ *Labour force data on CD-ROM*

The annual *Labour Force Historical Review on CD-ROM* provides a comprehensive database of Labour Force Survey estimates with thousands of cross-classified data series spanning more than two decades. With a total of 120 monthly and annual data tables, a wide range of subjects are available: labour force status by demographics, education and family characteristics, labour market trends in metropolitan areas, employment and unemployment levels by economic regions, industry and occupation data, wages and union membership, and much more.

The *Labour Force Historical Review on CD-ROM, 2001* (Catalogue no. 71F0004XCB, \$195) is now available. Network and bulk prices are available on request. To order this edition, contact your nearest Statistics Canada Regional Reference Centre or order via e-mail ([order@statcan.ca](mailto:order@statcan.ca)).

For more information on this product, contact the Labour Statistics Division's Client Services Unit at 1 866 873-8788 or (613) 951-4090; [labour@statcan.ca](mailto:labour@statcan.ca), or refer to the product profile on Statistics Canada's Web site ([www.statcan.ca](http://www.statcan.ca)). From *Canadian statistics*, choose *The people*, then *Labour, employment and unemployment*, and click on the banner ad for the *Labour force historical review*.

### ■ *Labour Force Survey data on CANSIM*

An extensive set of new Labour Force Survey tables are now available on CANSIM, Statistics Canada's electronic database. This collection comprises 93 tables, or 1.4 million series. These new tables are larger, with more cross-tabulations and a far greater variety of labour market variables collected by the Labour Force Survey.

Tables include hourly and weekly wages by industry and occupation; employment levels by union membership; job permanency; hirings and separations; multiple job-holders; establishment size; employment levels by industry and occupation for the public and private sectors, by full- versus part-time; labour force characteristics for metropolitan areas, economic

regions, medium-sized cities, and rural and urban areas; actual and usual hours; overtime hours; hours and days of work lost for personal reasons; educational attainment; labour force participation of students during the school year and summer months; duration of unemployment; and methods of job search.

For more information, contact Client Services, Labour Statistics Division, at 1 866 873-8788; [labour@statcan.ca](mailto:labour@statcan.ca).

## ■ *Survey of Self-employment*

Nearly one worker in six was self-employed in 2000, and most of these individuals were self-employed by choice, according to the first results from the Survey of Self-employment.

The survey was conducted in April 2000 by Statistics Canada on behalf of Human Resources Development Canada (HRDC). It collected data on the socio-demographic characteristics of the self-employed, as well as the hours they work; previous work experience; participation in dental, health and disability plans; income security; and attitudes towards self-employment.

For almost 80% of individuals, the transition to self-employment was made voluntarily. The remainder reported that they became self-employed because of a lack of suitable paid employment opportunities. Overall, a majority said they would not leave self-employment for paid employment.

Those who said they were remaining self-employed by choice were more likely to have a university degree, to be employers, and to have been in business longer.

The self-employed, both men and women, regarded 'entrepreneurial values' as the aspect they liked most about self-employment. However, a close second for women was the flexible hours or the ability to work from home that self-employment allows.

What self-employed people disliked most were uncertainty and insecurity (reported by 22% of respondents), long hours and no time off work (15%), income and cash flow fluctuations (12%), and lack of benefits (7%).

During the year prior to the survey, nearly 80% of the self-employed undertook some form of work-related, informal learning activities, such as discussions with colleagues, observing colleagues demonstrate their skills, or studying manuals or books. More than one-quarter of the self-employed undertook formal training.

*Results from the Survey of Self-employment in Canada* is now available on HRDC's Web site (<http://www.hrdc-drhc.gc.ca/arb/publications/list.shtml>). For more information on the report, contact HRDC Media Relations at (819) 994-5559.

The public-use microdata file (Catalogue no. 71M0017XCB, \$1,000) is also available. For more information, contact Client Services, Special Surveys Division, at 1 888 297-7355 or (613) 951-7355; fax: (613) 951-3012; [ssd@statcan.ca](mailto:ssd@statcan.ca).

## ■ *Self-employment among college and university graduates*

This research paper documents patterns of self-employment among four groups of post-secondary graduates (college, bachelor's, master's, doctoral) in the five years immediately following their graduation.

According to data from the National Graduates Survey, rates of self-employment were relatively stable for the first three cohorts of graduates covered in this report—those who finished their programs in 1982, 1986 and 1990.

For these graduates, at all levels taken together, self-employment rates two years after graduation ranged from 6.5% to 7.8% for men, and from 3.2% to 5.2% for women. Five years after graduation, the range had increased to between 9.9% and 11.1% among men, and between 5.3% and 6.7% among women.

The rates showed no discernible trend across these first three cohorts of graduates, including those who entered the labour market in the midst of the prolonged recession in the first part of the 1990s.

For the most recent graduates, however—those who finished in 1995—the incidence of self-employment was generally higher, although unevenly and not in all cases. By 1997, self-employment rates ranged from 6.9% to 12.0% for men, and from 5.2% to 13.3% for women.

Self-employment rates were generally higher for male graduates than females. The greater and more uniform increases for the 1995 cohort were, however, among women. Furthermore, the pattern by sex reversed at the doctoral level. Among 1995 doctoral graduates, for example, 13.3% of women were self-employed in 1997, almost double the percentage of men with doctorates (6.9%). In contrast, of the 1995 master's graduates surveyed, 12.0% of men and 9.7% of women were self-employed in 1997.



Analysis of factors such as employment rates, earnings levels, job satisfaction, and the job-education skill match suggests that self-employment status was generally associated with enhanced labour market outcomes rather than a limited availability of regular paid positions. For example, although the results were mixed, self-employed graduates tended to report higher earnings, closer job-education job matches, and greater work satisfaction than did paid workers.

Similarly, graduates who moved into self-employment from paid positions in the two to five years following graduation were more likely to show improvements in these outcome measures. The fact that individuals are drawn towards self-employment as employment rates improve over their early post-graduation careers provides further evidence of this.

In short, the evidence supports the 'pull' rather than the 'push' hypothesis. That is, individuals appear to be drawn towards self-employment by the opportunities offered rather than pushed because of an absence of other options.

The research paper *Setting up Shop: Self-employment amongst Canadian College and University Graduates*, no. 183 (Catalogue no. 11F0019MIE, free) is now available on Statistics Canada's Web site ([www.statcan.ca](http://www.statcan.ca)). From *Our products and services*, choose *Research papers (free)*, then *Social conditions*. It is also available from Human Resources Development Canada on the Applied Research Branch's Web page ([www.hrdc-drhc.gc.ca/arb](http://www.hrdc-drhc.gc.ca/arb)).

For more information, contact Ross Finnie, Business and Labour Market Analysis Division, at (613) 951-3962; [ref@qsilver.queensu.ca](mailto:ref@qsilver.queensu.ca).

## ■ Workaholics

People who considered themselves workaholics were more likely than other Canadians to feel stressed or worried, and less likely to feel happy or satisfied with their lives—even though they were just as likely to enjoy their jobs, according to a new study.

In addition, more than half felt trapped in a daily routine, compared with just one-third of their non-workaholic counterparts. And nearly 6 in 10 said they just did not have time for fun any more, compared with 3 in 10 non-workaholics. Rates of workaholism were higher among those with children.

This profile of people who described themselves as workaholics is based on time-use data from the 1998 General Social Survey (GSS). According to the GSS, more than one-quarter of Canadians aged 15 and older, or 6.6 million people, considered themselves workaholics. This proportion is in line with studies in the United States, which estimate that up to 30% of Americans are 'addicted' to work.

More than half of those who claimed to be workaholics said they felt under constant stress trying to accomplish more than they could handle. They reported being trapped in a daily routine and complained of never having enough time for fun. They were also more concerned than others about not devoting enough time to family and friends, and less satisfied with the way they spent their remaining time.

The data also showed that workaholics got just as much satisfaction from their careers as other workers. Nearly 4 in 10 in each group reported feeling very satisfied with their job.

Although work addiction can happen to anyone in any setting, people in management occupations, trades, and processing, manufacturing and utilities jobs were most likely to consider themselves workaholics. Those least likely to identify as workaholics were workers in clerical positions. These findings indicate that workaholics are not always in corporate or office jobs.

The report *Driven to Excel: A Portrait of Canada's Workaholics* is available in the Spring 2002 issue of *Canadian Social Trends*, no. 64 (Catalogue no. 11-008-XIE, \$8/\$27 or Catalogue no. 11-008-XPB, \$11/\$36). For more information, contact Susan Crompton, Housing, Family and Social Statistics Division, at (613) 951-2556; [cstsc@statcan.ca](mailto:cstsc@statcan.ca).

## ■ Remote data access

Researchers can now access a unique on-line service for researching and analyzing Statistics Canada's data on education. Remote Data Access (RDA) is a pilot project of the Centre for Education Statistics. Using this service, researchers can write and test their own computer programs using a file with artificial data. They can then send these programs via the Internet to Statistics Canada, where they will be run on the actual microdata file. The results are returned to the client.

## What's new?

For the moment, the only survey file available is the 1998 Adult Education and Training Survey. However, the 2000 Program for International Assessment and the 2000 Youth in Transition Survey will soon be available.

This service is an alternative to Statistics Canada's research data centres and regional offices, which are not always accessible to researchers.

At the outset, Remote Data Access is available free. There will be a minimal charge after an evaluation period of about three to six months. RDA is available

to any researcher, provided Statistics Canada has approved their project. For more details, consult Statistics Canada's Web site ([www.statcan.ca](http://www.statcan.ca)). From the side menu, choose *Learning resources*, then *Postsecondary*, then *Remote data access*.

For more information about this service, contact Sylvie Ouellette, Centre for Education Statistics, at (613) 951-9204; [sylvie.ouellette@statcan.ca](mailto:sylvie.ouellette@statcan.ca).

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### Perspectives

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# Key labour and income facts

## *Selected charts and analysis*

This section presents charts and analysis featuring one or more of the following sources. For general inquiries, contact Joanne Bourdeau at (613) 951-4722; [bourjoa@statcan.ca](mailto:bourjoa@statcan.ca).

### **Administrative data**

#### *Small area and administrative data*

Frequency: Annual  
Contact: Customer Services  
(613) 951-9720

### **Business surveys**

#### *Annual Survey of Manufactures*

Frequency: Annual  
Contact: Dissemination agent  
(613) 951-9497

#### *Annual Surveys—Service Industries*

Frequency: Annual  
Contact: Lucie Lussier  
(613) 951-0410

#### *Business Conditions Survey of Manufacturing Industries*

Frequency: Quarterly  
Contact: Claude Robillard  
(613) 951-3507

### **Census**

#### *Census labour force characteristics*

Frequency: Quinquennial  
Contact: Michel Côté  
(613) 951-6896

#### *Census income statistics*

Frequency: Quinquennial  
Contact: John Gartley  
(613) 951-6906

### **Employment and income surveys**

#### *Labour Force Survey*

Frequency: Monthly  
Contact: Marc Lévesque  
(613) 951-4090

#### *Survey of Employment, Payrolls and Hours*

Frequency: Monthly  
Contact: Sylvie Picard  
(613) 951-4090

#### *Help-wanted Index*

Frequency: Monthly  
Contact: Sylvie Picard  
(613) 951-4090

#### *Employment Insurance Statistics Program*

Frequency: Monthly  
Contact: Sylvie Picard  
(613) 951-4090

#### *Major wage settlements*

Bureau of Labour Information  
(Human Resources Development Canada)  
Frequency: Quarterly  
Contact: (819) 997-3117  
1 800 567-6866

#### *Labour income*

Frequency: Quarterly  
Contact: Anna MacDonald  
(613) 951-3784

#### *Survey of Labour and Income Dynamics*

Frequency: Annual  
Contact: Client Services  
(613) 951-7355 or  
1 888 297-7355

#### *Survey of Financial Security*

Frequency: Occasional  
Contact: Client Services  
(613) 951-7355 or  
1 888 297-7355

#### *Survey of Household Spending*

Frequency: Annual  
Contact: Client Services  
(613) 951-7355 or  
1 888 297-7355

### **General social survey**

#### *Education, work and retirement*

Frequency: Occasional  
Contact: Client Services  
(613) 951-5979

#### *Social and community support*

Frequency: Occasional  
Contact: Client Services  
(613) 951-5979

#### *Time use*

Frequency: Occasional  
Contact: Client Services  
(613) 951-5979

### **Pension surveys**

#### *Pension Plans in Canada Survey*

Frequency: Annual  
Contact: Patricia Schembari  
(613) 951-9502

#### *Quarterly Survey of Trusteed Pension Funds*

Frequency: Quarterly  
Contact: Bob Anderson  
(613) 951-4034

### **Special surveys**

#### *Survey of Work Arrangements*

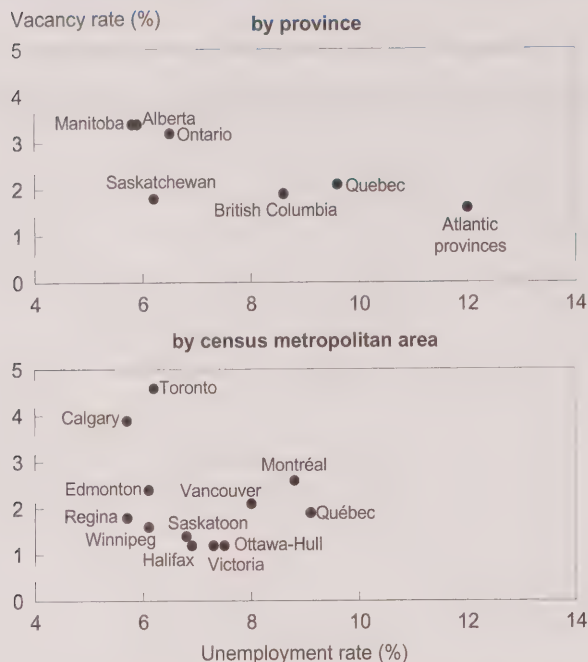
Frequency: Occasional  
Contact: Ernest B. Akyeampong  
(613) 951-4624

#### *Adult Education and Training Survey*

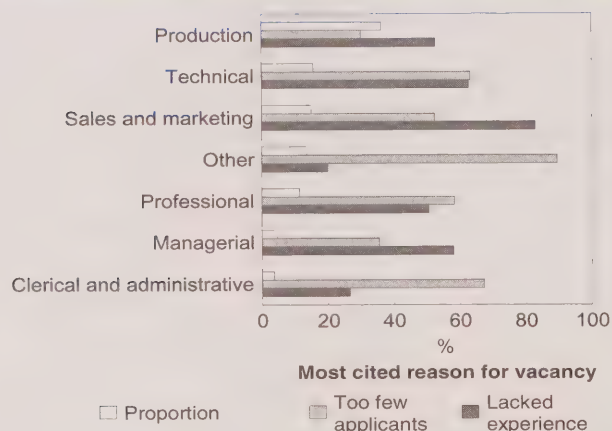
Frequency: Occasional  
Contact: Client Services  
(613) 951-7355 or  
1 888 297-7355

#### *Graduate Surveys*

(Postsecondary)  
Frequency: Occasional  
Contact: Client Services  
(613) 951-7608

**Chart A: Unemployment and vacancy rates**

Source: Workplace and Employee Survey, 1999

**Chart B: Long-term vacancies by occupation**

Source: Workplace and Employee Survey, 1999

A high unemployment rate usually coincides with a low job vacancy rate and, conversely, a high job vacancy rate coincides with a low unemployment rate. As the demand for labour rises, the number of unemployed workers tends to decline and the number of job vacancies tends to increase.

In 1999, the job vacancy rate was 2.6%, while the average unemployment rate (excluding the government sector) was 7.8%. Alberta, Manitoba and Ontario had the lowest unemployment rates and the highest vacancy rates. Conversely, the Atlantic provinces, British Columbia, and Quebec had the highest unemployment rates and the lowest vacancy rates. Toronto and Calgary census metropolitan areas showed relatively low unemployment rates and high vacancy rates, while Québec and Montréal had the highest unemployment rates and relatively low vacancy rates.

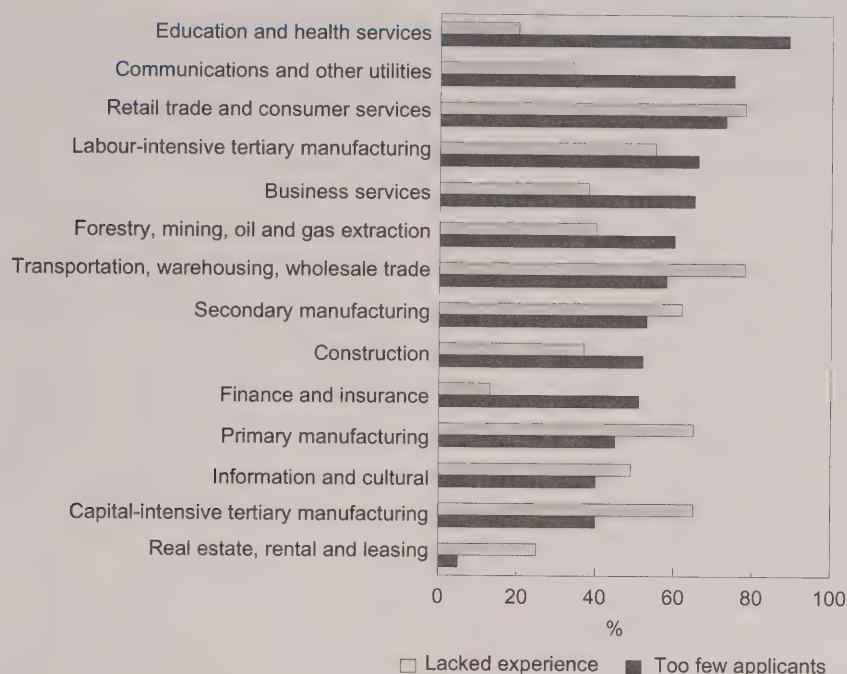
The number of positions unfilled for at least four months indicates jobs that employers are finding difficult to fill. In 1999, 45% of vacancies were of this type, and the longer-term job vacancy rate was 1.2%.

Of all the major occupational groups, production jobs accounted for the largest proportion of job vacancies—not surprising since this category also has the most employees. Technical, sales and marketing, and professional positions ranked somewhat behind, while managerial, and clerical and administrative vacancies made up only a small share.

Lack of experience and too few applicants were cited most often by employers to explain vacancies of four months or longer. Reasons varied by occupational group. Lack of experience was cited most often for managerial, sales and marketing, and production positions, while too few applicants was mentioned most often for professional, technical, and clerical and administrative jobs. Lack of education was also reported frequently (46% of respondents) for technical positions.



**Chart C: Reasons most often cited for vacant positions of four months or longer, by industry**



Source: Workplace and Employee Survey, 1999

When reasons by industry were examined, too few applicants was cited most often for education and health care services (80% of the respondents). Lack of experience was cited most often by employers in transportation, warehousing and wholesale trade, as well as those in retail trade and consumer services.

The length of time positions remain vacant may increase if a firm faces the problem of mismatches in either worker qualifications or geographic location. Some industries may require specific skills or high education levels. For others, the type of qualifications sought may be dictated by the level of technology and capital use, or a combination of technical and management skills.

**Table 1: Job vacancy rate by industry**

	Overall rate*	Long-term rate	Proportion of long- term vacancies	Average hourly earnings for full-time employees
	%	%	%	\$
<b>All industries</b>	<b>2.6<sup>E</sup></b>	<b>1.2</b>	<b>45</b>	<b>19.14</b>
Retail trade and consumer services	3.9 <sup>E</sup>	F	55	13.18
Labour-intensive tertiary manufacturing	2.5	1.4 <sup>E</sup>	56	15.18
Secondary manufacturing	2.2	0.8	35	18.53
Finance and insurance	2.1	0.8	39	19.97
Real estate, rental and leasing operations	F	F	75	20.06
Transportation, warehousing and wholesale trade	2.4	0.7	28	20.25
Primary manufacturing	1.2	0.4	36	20.68
Education and health services	1.9	0.7	38	20.77
Business services	2.5	0.7 <sup>E</sup>	28	20.80
Construction	2.3 <sup>E</sup>	1.7	73	21.22
Capital-intensive tertiary manufacturing	2.3	1.0	43	21.92
Information and cultural services	2.1	0.4	19	23.91
Communications and other utilities	2.0	0.8	39	24.28
Forestry, mining, oil and gas extraction	0.9	F	41	26.42

Source: Workplace and Employee Survey, 1999

\* The vacancy rate is defined as job vacancies / (total employment + job vacancies) • 100.

The lowest vacancy rate was found in forestry, mining, oil and gas extraction (1%)—industries at the high end of the pay scale. Conversely, the highest vacancy rate was in retail trade and consumer services (4%)—relatively low-wage industries.

Overall, 45% of vacant positions remained unfilled for at least four months. However, four industry groups showed a much higher proportion of long-term job vacancies: real estate, rental and leasing operations (75%); construction (73%); labour-intensive tertiary manufacturing (56%); and retail trade and consumer services (55%).



**Table 2: Employment and job vacancies by industry and average payroll per employee**

	Less than \$15,600		\$15,600 - \$27,999		\$28,000 and over		Total	
	Vacan- cies	Jobs	Vacan- cies	Jobs	Vacan- cies	Jobs	Vacan- cies	Jobs
<b>All industries</b>	<b>111,000</b>	<b>2,751,300</b>	<b>63,500</b>	<b>3,122,700</b>	<b>111,900</b>	<b>4,903,500</b>	<b>286,400</b>	<b>10,777,500</b>
	%							
Retail trade and consumer services	76.5 <sup>E</sup>	58.1	F	22.0	4.1 <sup>E</sup>	6.4	36.7 <sup>E</sup>	24.1
Educational and health services	9.0	17.6	25.9	30.3	17.1	18.6	15.9	21.7
Business services	5.8 <sup>E</sup>	9.0	F	6.0	13.6	11.6	9.1	9.3
Labour-intensive tertiary manufacturing	2.7 <sup>E</sup>	4.3	10.0 <sup>E</sup>	7.2	3.1 <sup>E</sup>	3.2	4.5	4.6
Transportation, warehousing and wholesale trade	F	3.0	F	7.3	17.1	16.3	9.3	10.3
Primary manufacturing	F	F	1.9 <sup>E</sup>	2.8	2.2 <sup>E</sup>	5.9	1.7	3.6
Real estate rental and leasing operations	F	2.4	1.5	1.6	F	1.5	F	1.8
Capital-intensive tertiary manufacturing	F	F	3.9 <sup>E</sup>	3.2	9.4	9.5	4.8	5.4
Construction	F	1.0 <sup>E</sup>	4.6 <sup>E</sup>	3.7	5.8 <sup>E</sup>	5.6	3.5 <sup>E</sup>	3.9
Information and cultural services	F	1.2 <sup>E</sup>	1.6 <sup>E</sup>	2.4	4.7	4.3	2.4	3.0
Forestry, mining, oil and gas extraction	F	F	F	0.9	F	3.0	0.6 <sup>E</sup>	1.8
Communication and other utilities	0.2 <sup>E</sup>	0.8	1.7	2.4	3.2	3.0	1.7	2.3
Finance and insurance	F	0.4 <sup>E</sup>	3.1 <sup>E</sup>	6.8	8.2	5.9	3.9	4.8
Secondary manufacturing	F	F	4.6 <sup>E</sup>	3.6	4.9	5.2	2.9	3.5

Source: Workplace and Employee Survey, 1999

The average annual payroll per employee was estimated for each establishment (based on total gross payroll). The results were then grouped into three classes: under \$15,600, \$15,600 to \$27,999, and \$28,000 and over. In the under \$15,600 segment, more than three-quarters of job vacancies were in retail trade and consumer services, which represents only 58% of jobs in this segment.

In the \$15,600 to \$27,999 segment, the distribution was less concentrated. Educational and health services accounted for 26% of job vacancies—a slight

underrepresentation since this sector represents 30% of jobs in this segment. The labour-intensive tertiary manufacturing industries accounted for 10% of vacancies, while representing only 7% of jobs.

For the \$28,000 and over segment, the distribution was again less concentrated. The three largest shares of vacancies were in educational and health services; transportation, warehousing and wholesale trade; and business services. The latter industries showed a higher portion of vacancies than jobs (14% versus 12%).

**Table 3: Job vacancy rate by establishment size**

Establishment size	Overall rate*	Long-term rate	Quit rate	Proportion of long-term vacancies
	%			
<b>All establishments</b>	<b>2.6</b>	<b>1.2</b>	<b>12.3</b>	<b>45.4</b>
Fewer than 20 employees	2.9	1.5	15.2	52.9
20 to 99 employees	3.1	1.5	14.0	49.5
100 to 499 employees	2.0	0.6	11.5	28.5
500 employees and over	1.9	0.6	5.7	32.7

Source: Workplace and Employee Survey, 1999

\* The vacancy rate is defined as (job vacancies / (total employment + job vacancies)) \* 100.

Vacancy rates tended to be lower in larger establishments. In 1999, the rate for establishments with 500 or more employees was 2%, compared with around 3% for establishments with fewer than 100 employees.

Smaller establishments account for a sizeable share of labour turnover. Compensation (wages and fringe benefits), job security, and career opportunities in small establishments are often less favourable than in large establishments. These factors may explain why smaller

establishments have more difficulty retaining employees. The quit rate was higher in small establishments (15%) than in very large ones (6%). The small establishments may have attracted fewer applicants and had vacancies of longer duration. Almost 53% of all vacant positions in establishments with fewer than 20 employees had been vacant for at least four months, compared with 29% for those with 100 to 499 employees, and 33% for those with 500 or more.



**Table 4: Job vacancy rate by separation, quit and hiring rates**

	Vacancy rate	Long-term rate
		%
<b>Overall</b>	<b>2.6</b>	<b>1.2</b>
Without separations*	1.6	0.7
With separations	2.8	1.2
Less than 5.0%	1.3	0.4
5.0% to 9.9%	2.2	1.0
10.0% to 14.9%	2.0	0.6 <sup>E</sup>
15.0% to 19.9%	4.4	F
20.0% and over	4.6	F
Without quits	1.6	0.8
With quits	3.0	1.3 <sup>E</sup>
Less than 2.0%	1.3	0.4
2.0% to 3.9%	1.5	0.4
4.0% to 5.9%	1.9	0.9 <sup>E</sup>
6.0% to 7.9%	2.2	0.7 <sup>E</sup>
8.0% to 9.9%	2.3	0.9 <sup>E</sup>
10.0% to 19.9%	3.1	1.4 <sup>E</sup>
20.0% and over	4.9	F
Without hiring	1.0	0.4
With hiring	2.6	1.1
Less than 20.0%	2.3	F
20.0% to 49.9%	3.0	1.1 <sup>E</sup>
50.0% to 99.9%	3.8	1.5 <sup>E</sup>
More than 100.0%	4.6 <sup>E</sup>	F

Source: Workplace and Employee Survey, 1999

\* Separations do not include layoffs but do include quits, dismissals for cause, and retirements.

**Table 5: Vacancy rates by employment change**

	Overall rate	Long-term rate
		%
<b>All establishments</b>	<b>2.6</b>	<b>1.2</b>
Change in total employment*		
Shrinkage	2.6	1.5 <sup>E</sup>
No change	2.8	F
Growth	2.3	0.7
Change in part-time employment*		
Shrinkage	2.3	1.0
No change	2.8	1.5
Growth	2.5	0.9

Source: Workplace and Employee Survey, 1999

\* Differences not statistically significant.

Separation and quit rates are two indicators of replacement demand. Separations include quits (voluntary separations), retirements and firings and exclude layoffs and special workforce reductions. Vacancy rates generally increase with separation rates. This simple relationship may reflect a size effect, since small establishments have relatively high vacancy and separation rates.

Overall, the job vacancy rate for establishments with quits was nearly two times higher (3.0%) than for establishments without quits (1.6%). The corresponding figures in respect to vacancies unfilled for at least four months were 1.3% and 0.8% respectively. The vacancy rate also increased as the quit rate rose.

Hiring indicates replacement demand, or expansion demand, or both. Since hiring can be used as a proxy for vacancies, it is not surprising to see that the job vacancy rate was higher for establishments that carried out hiring over the previous fiscal period and that it generally increased with the hiring rate. The gap between the vacancy rates, whether or not the establishment had hired new employees during the year, still held as the size of the establishment increased.

In order to analyze the effect of expansion demand, employment changes over the previous year for both total and part-time employment were examined. No significant change in the rates was seen when total or part-time employment varied.

At least two factors could explain this pattern. First, expanding firms may have other characteristics (such as relatively high wages or good working conditions) that reduce labour turnover, offsetting the effect of strong expansion demand through lower replacement demand. Second, workers in expanding firms may feel more secure about their job and consequently tend to quit less often. This would reduce the need to replace workers in these firms and also offset the effect of strong expansion demand.

**Table 6: Job vacancy rates by selected indicators**

	Overall rate	Long-term rate
	%	
<b>All establishments</b>	<b>2.6</b>	<b>1.2</b>
<b>Average payroll per employee*</b>		
Less than \$20,000	3.4	F
\$20,000 to \$49,999	2.2	0.9
\$50,000 and over	2.0	0.9
<b>Fringe benefits**</b>		
At least one	2.2	0.8
All	2.2	0.8
Some but not all	2.1	0.8
None	3.7	F
<b>Unionization</b>		
Yes	1.8	0.7
No	3.0	1.5 <sup>E</sup>
<b>Training†</b>		
Yes	2.8	1.2
No	1.4	0.9 <sup>E</sup>
<b>Employees using computers</b>		
Less than 1.0%	F	F
1.0% to 24.9%	2.4	1.0
25.0% and over	2.1	0.7
<b>New management method***</b>		
Yes	2.4	0.8
No	2.9	1.7
<b>Innovation</b>		
Yes	3.0	F
No	1.8	0.6

Source: Workplace and Employee Survey, 1999

\* Differences are not significantly different from 0.

\*\* Includes pension plans and group RRSPs, life or disability insurance plans, supplemental medical insurance, and dental care plans.

† Includes on-the-job training, classroom training, and training funded by the employer.

†† Includes employee suggestion program, flexible job design, information sharing with employees, problem-solving teams, joint labour-management committees, and self-directed work groups. Questions relating to the use of a new management method applied only to establishments with more than 10 employees.

Other indicators related to an establishment's employee retention capacity were also examined. If an establishment offers good salaries, training, and fringe benefits and involves employees in decision making, it may have fewer quits.

The vacancy rate tended to be higher if an establishment had low average payroll per employee, no fringe benefits, and non-unionized workers. Establishments that offered training had higher vacancy rates than those that did not. Even when training for new personnel such as employee orientation and apprenticeship training programs was removed, the difference in vacancy rates still held. This may be because firms use training to respond to labour shortages. The vacancy rate was also higher if the establishment was innovative.



**Table 7: Vacancy rates by establishment characteristics for profit-oriented establishments**

	Establishments with vacancies	Jobs in establishments with vacancies	Vacancy rate for establishments with vacancies	Vacancy rate (all establishments)
			%	
<b>All profit-oriented establishments</b>	<b>12.8</b>	<b>35.0</b>	<b>7.8</b>	<b>2.7</b>
<b>Part of a multi-establishment firm</b>				
Yes	14.9	42.1	4.4	1.9
No	12.3	30.7	10.6	3.3
<b>Adopting new technology increasing skill requirements</b>				
Yes	25.0	46.0	6.8	3.1
No	10.7	31.2	8.4	2.6
<b>Who deals with human resources matters?</b>				
Human resources unit in establishment	31.7	61.4	3.9	2.4
One person full-time in establishment	F	F	F	F
One person part-time in establishment	11.3	25.6	9.4	2.4
Person/unit outside establishment	10.7	21.6	8.1	1.8
Issues handled as they arise	13.3	26.9	11.0	3.0
Other arrangement	F	F	F	F
<b>Local unemployment rate</b>				
4.0% to 5.9%	15.1	38.2	8.6	3.3
6.0% to 7.9%	10.6	30.8	6.5	2.0
8.0% and over	8.4	29.7	6.5	1.9

Source: Workplace and Employee Survey, 1999

Only 12.8% of all profit-oriented workplaces had vacancies in 1999. The number of jobs (that is, the number of positions already filled plus the number of job vacancies) in establishments with vacancies represented 35.0% of all jobs available. Since these establishments had a job vacancy rate of 7.8%, the overall vacancy rate was 2.7% ( $0.35 \times 7.8\%$ ). This figure is very close to the 2.6% job vacancy rate for all establishments—both profit- and non profit-oriented.

Establishments that were not part of a multi-establishment firm tended to have relatively high vacancy rates. The same pattern occurred among establishments that had introduced a new technology with increased skill requirements. As expected, establishments operating in tight local labour markets—that is, those with low unemployment rates—faced more severe labour constraints than others. Contrary to expectations, establishments with a separate human resources unit did not have particularly low vacancy rates.

**Table 8: Vacancies by industry, profit-oriented establishments**

	Total	Long-term
	%	
<b>All industries</b>	<b>100.0</b>	<b>100.0</b>
Forestry, mining oil and gas extraction	0.6	0.5
Labour-intensive tertiary manufacturing	5.5	6.2
Primary manufacturing	2.1	1.7
Secondary manufacturing	3.6	2.6
Capital-intensive tertiary manufacturing	5.4	5.5
Construction	4.0	6.1
Transportation, warehousing and wholesale trade	10.9	6.6
Communication and other utilities	1.4	1.3
Retail trade and consumer services	43.1	50.3
Finance and insurance	4.3	3.6
Real estate, rental and leasing operations	3.3	5.7
Business services	9.8	6.2
Education and health services	3.2	2.8
Information and cultural services	2.8	0.9

Source: Workplace and Employee Survey of 1999

If three dimensions are considered simultaneously, establishments with a higher than average (38%) percentage of skilled workers, who during the previous year implemented an innovation and introduced a new technology requiring greater skills, showed vacancy rates of 4%. These establishments accounted for 6% of all jobs in the private sector.

Furthermore, non-unionized establishments operating in retail trade and consumer services industries and not belonging to a multi-establishment firm had even higher vacancy rates (5%). These establishments accounted for fully one-third of all job vacancies. This last finding suggests that a substantial share of job vacancies originate in retail trade and consumer services industries. Indeed, more than 40% of all job vacancies and 50% of long-term vacancies were found in this sector. Thus, even in periods of strong economic growth, a substantial share of job vacancies occur outside the high-technology sectors.

Charts, tables and text were adapted from *The Quest for Workers: A new portrait of job vacancies in Canada* (Statistics Canada Catalogue no. 71-584-MIE01002). For more information, contact Diane Galarneau, Labour Statistics Division, at (613) 951-4626; [diane.galarneau@statcan.ca](mailto:diane.galarneau@statcan.ca).

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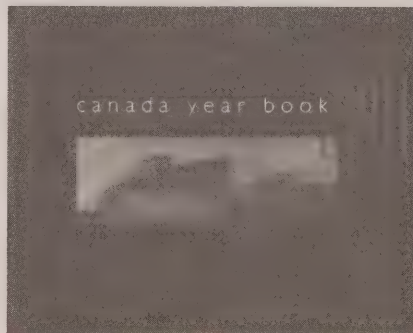
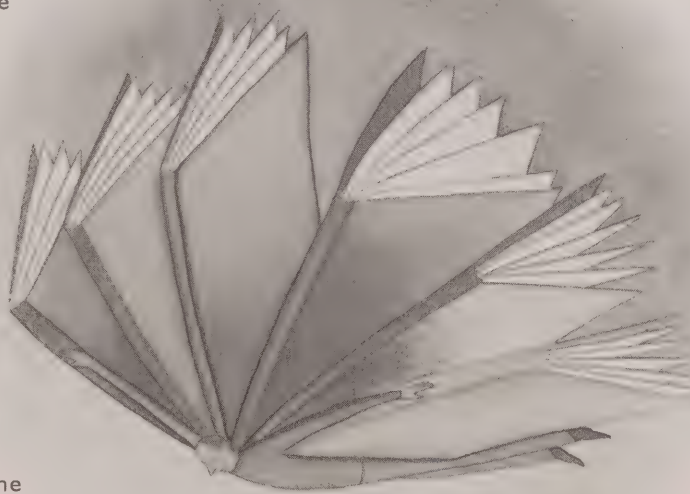
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## 42 Unionization and fringe benefits

*Ernest B. Akyeampong*

Wages and salaries are largely determined by the interaction of supply and demand for labour, and by general economic conditions. In contrast, insurance and pension plan coverage are provided primarily at the discretion of the employer, often in response to demands from organized labour. This being so, one would expect coverage rates in these plans to be higher for unionized workers.

## 47 Better jobs in the new economy?

*Marie Drolet and René Morissette*

Employees in workplaces directly involved in generating new technologies and products are generally seen as working long hours, under pressure to generate a new product in a very competitive environment. It is generally assumed that they are well paid, not only through direct wages, but also through stock options and other forms of remuneration. These notions are explored by comparing jobs in knowledge-based workplaces with those in other sectors of the economy.

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## Perspectives on Labour and Income

*The quarterly for labour market and income information*



# Forum

■ One of the main advances in the social sciences in the last quarter century has been to link context with outcomes. Human endeavours are now better understood as taking place within complex contextual layers, each of which may affect the end result. For example, educational researchers now routinely integrate information on neighbourhoods, schools, classrooms, family characteristics, and health status into studies of student performance.

A number of elements must be in place to support such studies. Social scientists must develop models of the important contexts through case studies. Statistical mathematicians must develop techniques to test the contextual hypotheses. Statistical agencies must either collect or integrate information from a number of sources. But most importantly, there must be a compelling issue to drive the development.

Computerization of the workplace is one of the most compelling social and economic trends of recent years. Workplace computer use has expanded from the realm of a handful of mainframe specialists in the 1960s to encompass well over half of all employees today. Computerization imposed an intensive learning experience on both management and staff. Many tasks were fundamentally altered, necessitating changes to the very organization of work. How well individuals and organizations adapted shaped their personal and collective success.

But traditional surveys are not well placed to track such changes and their effects. Business surveys capture aggregate information on capital and labour, but generally do not collect information on how businesses are organized or the characteristics and activities of employees. Household surveys collect information about workers—and increasingly, what they do at work—but lack information on workplace and employer characteristics. These traditional survey structures leave information gaps about how work organization and employee activities affect company

outcomes on the one hand, and how work organization and company policies and practices affect employee outcomes on the other.

No sudden epiphany signalled that it was time to fill these gaps. Instead, researchers and statistical agencies began connecting the dots from a number of angles. Lars Osberg of Dalhousie University pioneered an employer-employee framework in a study of Nova Scotia manufacturing industries. Britain and Australia introduced national industrial relations surveys that combined management and union responses. John Goddard of the University of Manitoba, among others, developed survey instruments to explore work organization. Canada and several other OECD countries initiated special surveys of technology use and innovation in manufacturing industries.

These and other developments contributed to the momentum for an integrated employer-employee survey at Statistics Canada, but in the end it was intense curiosity about the effects of workplace computerization that galvanized support for such a survey. Academics, policy makers, business analysts, and media commentators were actively speculating about computers and earnings, computers and reorganization, computers and productivity, and so on. In this milieu, Statistics Canada garnered support from Human Resources Development Canada to conduct a pilot employer-employee survey. Subsequently, a multi-party review of knowledge gaps in the statistical system buttressed the development of a full-scale survey.

All this is a somewhat long-winded introduction to the first *Perspectives* article based on the Workplace and Employee Survey. Marie Drolet and René Morissette explore the compensation and working conditions of employees in knowledge-based industries in “Better Jobs in the New Economy?”. The study profiles the new economy near its zenith—just prior to the high-tech stock meltdown. This was a time when



competition for high-tech workers was intense (don't forget Y2K) and stock options were the hot bait. The study suggests that high pay and long hours were the order of the day, just what one should expect in a high-demand, low-supply situation.

This article just scratches the surface of the new survey. It uses employer information to select knowledge-based firms and derive the incidence of some benefits. The remaining information on earnings and benefits comes from employees. The step forward is that data from the two sources can be integrated since the employers and employees were selected in tandem.

Marie, René and some 15 other researchers are engaged in more in-depth projects that will culminate in a conference later this fall. Many of these projects will use the contextual nature of the data to bring new insights to administrative studies, labour economics and industrial relations. *Perspectives* will do its best to keep our readers up-to-date on the most interesting findings from the survey.

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**Perspectives**

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**We welcome your views** on articles and other items that have appeared in *Perspectives*. Additional insights on the data are also welcome, but to be considered for publication, communications should be factual and analytical. We encourage readers to inform us about their current research projects, new publications, data sources, and upcoming events relating to labour and income.

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# Highlights

## *In this issue*

### **Families on the financial edge**

... p. 9

- The proportion of individuals in families with low income and little financial wealth remained virtually unchanged between the mid-1980s and the late 1990s.
- However, some groups, such as recent immigrants, became more financially vulnerable to income interruptions and unexpected expenses. Others—specifically, elderly unattached individuals—improved their economic position.
- In 1999, the vast majority of low-income families had no more savings to protect themselves against adverse events than did their counterparts in the mid-1980s.
- In 1999, the most vulnerable families by far were prime-aged (25 to 54) families of two or more persons with no earner. Only one-third of persons in these families had a major income recipient with a long-term work limitation or disability. Of the remaining prime-aged families with no earner, almost two-thirds had a major income recipient with at most a high school diploma or some postsecondary education.

### **Falling behind**

... p. 21

- One in 6 Canadian families fell behind two months or more in a bill, loan, rent or mortgage payment in 1998. Couples without children had the lowest incidence (10%), female lone-parent families had the highest (32%). However, most of the differences between family types were eliminated when the characteristics of the families were controlled for. The one exception was female lone-parent families who were 1.3 times more likely than couples with children to have fallen behind.

- Larger families (three or more children) differed significantly from families with two children, even after key characteristics such as income and age were controlled for. The absence of children was associated with a lower probability of falling behind.
- Age and education of the major income recipient (MIR) remained important after other characteristics such as family type, income and net worth were controlled. Older families and older unattached individuals were less likely to have difficulty making timely payments. Families in which the MIR had a university degree had a 40% lower probability of falling behind than those in which the highest level was high-school graduation.
- When families were placed in quintiles based on net worth, those in the bottom quintile (negative or low net worth) showed a 6 times higher incidence of falling behind than those at the top of the distribution. Surprisingly, 5% of families in the top of the distribution also fell behind. The median family income of those who made their payments on time was almost 50% higher than the income of those who did not. However, after other family characteristics were controlled for, after-tax income and net worth were associated with only small differences in the probability of falling behind.
- For most family types, the rate of falling behind for those who had previously declared bankruptcy was roughly twice as high as for those who had not (30% compared with 15%). This was not the case for female lone-parent families, where the rate was high even for those who had never declared bankruptcy (40% compared with 31%). After other characteristics were controlled for, families with a previous bankruptcy were 1.6 times more likely to have trouble keeping up with their payments. Unattached individuals who had declared bankruptcy were twice as likely to have fallen behind.

## ■ Housing: An income issue ... p. 28

- In 2000, the median Canadian household spent 21% of after-tax income on housing. Owners without a mortgage spent 11%, owners with a mortgage spent 25%, and tenants spent 28%. Just over one in five tenants spent 40% or more.
- Two-thirds of households owned the dwellings they lived in—half of them mortgage-free. Income played an important role in determining the level of ownership. Only 40% of households in the lowest income group owned their homes, compared with 85% in the highest.
- While the majority (86%) of families lived in housing that did not need major repairs and had enough bedrooms to meet their needs, one in seven families lived in dwellings that did not meet these condition or size norms. The proportion living in dwellings below the norms was almost three times higher in the lowest income group than in the highest.
- Households that were more likely to live in dwellings below the norms were also more likely to spend a high proportion of their income on housing. Roughly one in four tenants, lone-parent families, and lowest-income households were housed below the norms, yet they spent approximately one-third of their income on housing.
- Compared with other families, low-income families spent proportionately twice as much of their after-tax income on housing.
- Low-income tenants spent almost half their income on housing—those living in non-subsidized housing spent 48%, while those in government-subsidized housing spent significantly less (31%).

## ■ Pensions: Immigrants and visible minorities ... p. 36

- In 1998, 53% of immigrant men aged 25 to 54 had a pension plan in association with their job, compared with 57% of men born in Canada. The comparable percentages for women were 44% and 48% respectively.
- Pension coverage of men who belonged to a visible minority (most of whom are immigrants) was only 46% in 1998, much lower than the rate observed for other male employees (57%). In contrast, pension coverage of visible-minority women was 45%, fairly close to that of other women (48%).
- Visible-minority immigrant men had substantially lower coverage than other immigrant men; the gap in coverage amounted to 15 percentage points. Half of the gap could be explained by differences in time spent in Canada, union status, firm size, and industry of employment.

## ■ Unionization and fringe benefits ... p. 42

- In 1999, slightly more than half of all employees were covered by a medical, dental, or life/disability insurance program. About 43% were covered by an employer-sponsored pension plan.
- Coverage rates in the three insurance plans for unionized workers were approximately double those for non-unionized (80% versus 40%). The union advantage in pension plan coverage was much larger (80% versus 27%).
- A majority of unionized employees enjoyed coverage under all three insurance plans; a majority of non-unionized had no coverage under any plan.
- For unionized workers, the chances of being covered were almost the same in both the public and private sectors. For the non-unionized, the chances were much higher in the public sector.



## ■ Better jobs in the new economy?

... p. 47

- While employees in knowledge-based workplaces generally work longer hours, they also receive higher wages. On average, hourly wages in knowledge-based industries were 32% higher than in other industries. However, after differences in education, size and location of workplace, occupation, and hours are controlled for, the gap drops to 8%.
- Compared with other workers, employees in knowledge-based workplaces are not necessarily better covered by a registered pension plan. However, they often receive employee stock options and are more frequently involved in group registered retirement savings plans.
- Knowledge-based workplaces offer fitness and recreation services and employee assistance programs (such as counselling, substance abuse control, financial assistance, legal aid) more frequently than other workplaces, and child care services at least as often.
- Employees in knowledge-based workplaces are more likely to have performance appraisals. Furthermore, the results are more likely to affect their pay or benefits.
- Workers in service-producing, knowledge-based workplaces are less likely to be unionized than other workers (except those in retail trade and consumer services). As a result, few have a formal grievance system.

## ■ What's new?

... p. 59

### ■ Just released

2001 Census: Age and sex

Individual income

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# Families on the financial edge

René Morissette

OVER THE LAST 15 YEARS, several studies have examined the extent of low income among Canadian families (Picot and Myles 1995; Myles and Picot 2000; Morissette and Zhang 2001). A family's after-tax income is an important indicator of its ability to sustain a given standard of living. Also important is its wealth, which includes resources that can be converted into cash in times of need. Financial assets can allow a family to absorb the shock of economic stresses, such as job loss, sickness or divorce (Wolff 1998). However, because of the scarcity of wealth data, very few studies have examined the extent to which Canadian families rely on both income and wealth to maintain a desired level of consumption (Love and Oja 1977; Wolfson 1979).<sup>1</sup>

Using the 1984 Assets and Debts Survey and the 1999 Survey of Financial Security, this article examines which families are financially vulnerable in the face of income interruptions or unexpected expenses. Families with both low income and little or no financial wealth have fewer resources, making them more vulnerable than other families to negative shocks. Since some families with no financial wealth or net worth may earn substantial incomes, making them *not* vulnerable, the article looks at two types of families that are potentially at risk: low-income families with no financial wealth, and low-income families with modest financial wealth. This examination helps identify families likely to face short-term financial difficulties as a result of unexpected events (see *Data sources and definitions*).

## Families with no financial wealth or net worth

Between 1984 and 1999, the percentage of persons living in families with no net worth rose slightly, from 8% to 11% (Tables 1 and 2). This increase occurred despite an increase in the median and average wealth of families (Morissette, Zhang and Drolet 2002). The

percentage of persons living in families with no financial wealth followed a similar pattern, increasing from 17% in 1984 to 19% in 1999.

The small increase masks substantial increases for some family types. Among individuals living in very young families of two or more persons (families in which the major income recipient was less than 25), the incidence increased from 24% to 40%. Similarly, those in female lone-parent families, immigrant families living in Canada for less than 10 years, and families in Newfoundland and Labrador saw increases of at least 7 percentage points.<sup>4</sup>

In addition to those living in very young families and female lone-parent families, those in prime-aged families<sup>5</sup> with no earner were the most likely to be in a family with no financial wealth in 1999—at least 40%. Other individuals with a fairly high risk included non-elderly unattached individuals (30%), those living in Newfoundland and Labrador (33%), those in families whose major income recipient had a work limitation (31%) or was aged 25 to 34 with no university degree (33%), and couples with children whose major income recipient was aged 25 to 34 (28%).

In contrast, individuals in elderly families (major income recipient 65 or over) were the least likely to be in a family with no financial wealth. This is not surprising since older families have had more time than their younger counterparts to accumulate savings.

## Some families with no financial wealth are not financially vulnerable

Some families with no financial wealth may earn substantial income and are therefore not necessarily financially vulnerable. For example, many young families with children have had little time to accumulate savings. This is especially true now that young people are staying in school longer and entering the full-time labour market later. Some families earning substantial income may choose to spend a large portion of it, thereby accumulating little or no financial

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**Table 1: Persons in families with no net worth or financial wealth, by selected demographic characteristics**

	No net worth*		No financial wealth*	
	1984	1999	1984	1999
	%			
<b>All family units</b>	<b>8.3</b>	<b>11.0</b>	<b>17.2</b>	<b>19.0</b>
<b>Age of major income recipient (MIR)</b>				
Less than 25	21.5	37.9	26.7	43.1
Two or more persons	17.5	32.3	23.9	40.0
25 to 34	12.7	20.9	23.8	30.1
Couples with children under 18	9.3	16.2	23.8	28.0
35 to 44	6.8	10.0	18.1	18.6
Couples with children under 18	5.0	7.0	16.5	16.0
45 to 54	4.0	5.7	11.8	15.7
Couples with children under 18	2.7	3.4	12.0	13.2
55 to 64	3.6	4.6	10.5	10.3
65 and over	4.6	3.7	7.9	7.3
<b>Education level of MIR</b>				
No university degree	9.0	12.3	17.9	20.8
25 to 34	13.6	22.8	24.9	32.6
35 to 54	6.3	9.5	16.5	19.6
University degree	4.5	6.6	12.8	12.9
25 to 34	7.8	15.0	17.8	22.6
35 to 54	2.6	4.2	11.1	10.8
<b>Family type</b>				
Elderly unattached individuals	8.0	6.2	10.9	8.6
Other unattached individuals	23.9	26.6	27.6	30.1
Couples, no children	7.0	8.9	13.5	14.4
Couples, children under 18	6.3	8.8	18.3	18.6
Couples, children 18 and over	1.6	4.7	8.6	17.0
Elderly couples, no children	1.3	1.9	3.3	4.1
Lone-parent families	26.8	30.8	34.4	40.2
Female lone-parent	28.6	32.7	35.4	42.8
Other families	10.0	9.7	16.9	17.9
<b>Immigration status of MIR</b>				
Canadian-born	8.8	11.3	18.0	19.5
Immigrants	6.5	10.1	14.0	17.6
Less than 10 years	10.1	17.5	15.2	26.3
10 years or more	5.7	7.3	13.7	14.3
<b>Families of two or more and MIR aged 25 to 54</b>				
No earners	37.1	40.5	44.2	43.5
One earner	9.4	15.1	20.6	25.2
Two or more earners	4.9	7.2	15.8	17.3
<b>MIR with long-term work limitation</b>				
No	..	10.4	..	19.5
Yes	..	20.8	..	31.3

Sources: Assets and Debts Survey, 1984; Survey of Financial Security, 1999

\* Zero or negative.

assets for a significant period. Some families may have had to sell all their financial assets to substitute for income lost during a permanent layoff in the past, or to pay for unexpected expenses such as major house repairs. Or, some families may have opted to put their savings into their home.<sup>6</sup>

In both 1984 and 1999, slightly more than 70% of individuals living in families with no financial wealth were not in low income. The remaining 30% belonged to families whose after-tax income was below Statistics Canada's low-income cutoffs (Chart A).<sup>7</sup>

Depending on the type of family, individuals in families with no financial wealth had markedly different chances of living in low income. In 1999, the chances were greatest for non-elderly unattached individuals (56%), and for those living in female lone-parent families (63%), very young families (53%), and recent-immigrant families (49%). The chances of being in low income were fairly low for non-elderly couples, with or without children.

In 1984, having no financial wealth was a fairly sure sign that an elderly unattached individual would be in low income. Indeed, 76% of elderly unattached individuals with no financial wealth were in this position. This pattern held true to a much lesser extent in 1999 when the incidence dropped to 39%.<sup>8</sup>

### Low-income families with no financial wealth

Low-income families with no financial wealth are likely to be much more financially vulnerable to adverse events than other fami-

**Table 2: Persons in families with no net worth or financial wealth, by province and selected city**

	No net worth*		No financial wealth*	
	1984	1999	1984	1999
	%			
<b>Province</b>				
Newfoundland and Labrador	6.0	14.8	24.8	33.4
Prince Edward Island	7.7	12.0	21.2	23.8
Nova Scotia	9.1	13.5	24.9	24.2
New Brunswick	11.1	11.7	25.9	27.2
Quebec	9.8	11.9	17.8	19.2
Ontario	7.7	10.4	16.0	18.0
Manitoba	7.6	10.3	16.0	16.4
Saskatchewan	7.4	8.9	19.3	16.6
Alberta	8.7	9.8	14.9	16.7
British Columbia	7.0	11.5	15.5	19.5
<b>Selected cities</b>				
Montréal	12.6	14.3	18.3	21.6
Toronto	7.8	10.4	13.7	17.4
Vancouver	7.5	10.8	13.9	19.0

Sources: Assets and Debts Survey, 1984; Survey of Financial Security, 1999

\* Zero or negative.

lies since not only do they live in straitened circumstances but they also have no financial assets to draw on.

In both 1983 and 1998, about 14% of the Canadian population was living in low income (Tables 3 and 4).<sup>9</sup> Of all individuals in low income, 36% to 39% lived in families with no financial wealth in the following year (Chart B).<sup>10</sup> Consequently, 5% of the population lived in families having low income and no financial wealth during both the 1983-84 and the 1998-1999 periods (from here on referred to as 1984 and 1999 respectively).

This constant share hides important changes that occurred in some family types. The proportion of elderly unattached individuals having low income and no financial wealth fell from 8% in 1984 to 3% in 1999. This improvement was due mainly to the falling incidence

of low income within this group. The percentage of individuals in vulnerable families also fell in New Brunswick.<sup>11</sup> In Newfoundland and Labrador, despite a sharp decrease in the incidence of low income, the percentage dropped very little.<sup>12</sup> This was due to a growing fraction of low-income families with no financial wealth.<sup>13</sup>

While the data suggest that the proportion of persons in families with low income and no financial wealth rose among very young families of two or more persons, female lone-parent families, and families of recent immigrants, the evidence must be interpreted with caution.<sup>14</sup> In any event, in 1999, individuals in these families were at least twice as likely to belong to a family with low income and no financial wealth. For female lone-parent families, the proportion (27%) was five times higher than the national average.

The most vulnerable by far appear to be prime-aged families of two or more persons with no earner, totalling about 900,000 persons or 3% of the population in 1999. In more than 90% of cases, the major income recipient either had a long-term work limitation or disability (33%), was a female lone parent (35%), or was looking for a job for part or all of the year (24%). In 1999, almost 40% of individuals in these families belonged to families with low income and no financial wealth. The corresponding percentage was 13% for individuals living in families whose major income recipient was aged 25 to 54 and had a long-term work limitation.

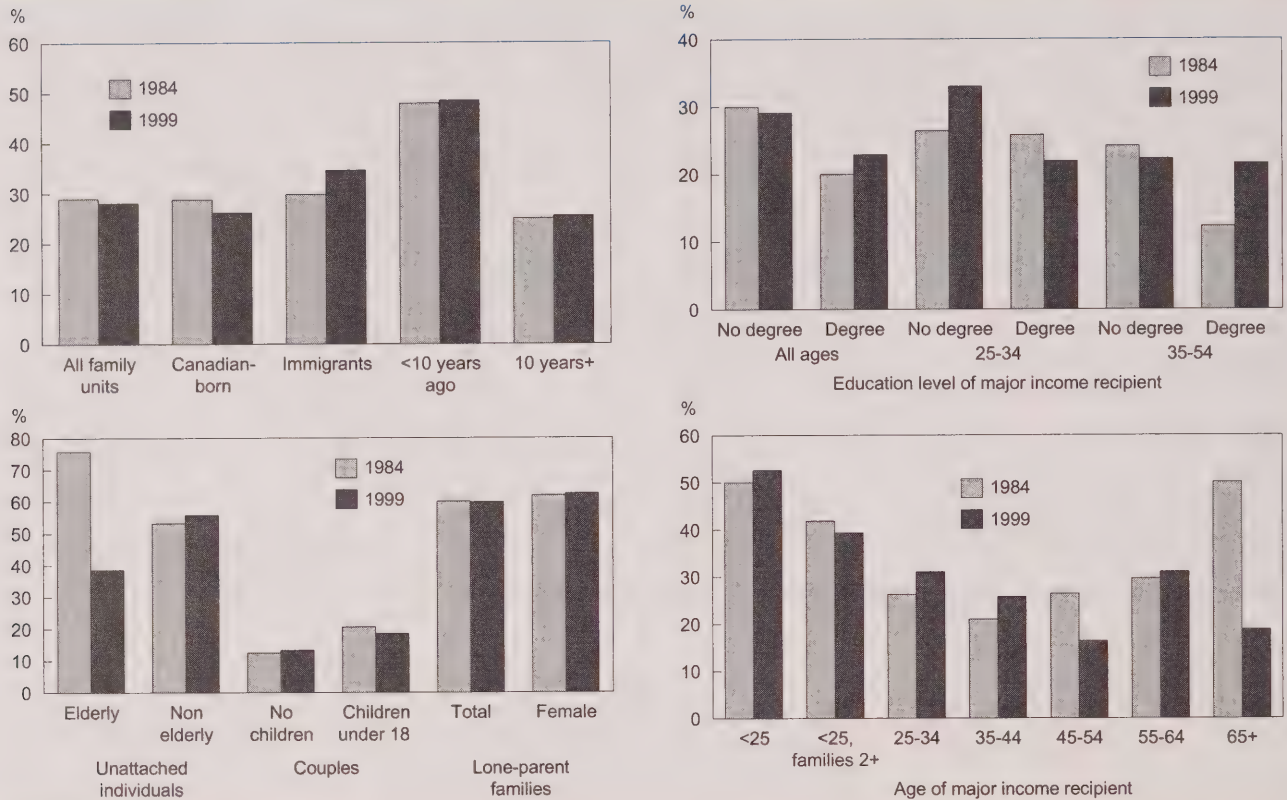
### Low-income families with modest amounts of financial wealth

While 5% of Canadians lived in low-income families with no financial wealth in 1999, 10% were in low-income families with modest amounts of financial wealth (families with insufficient financial wealth to cover their low-income gap). In other words, these low-income families would have remained in low income even if they had liquidated all their financial assets and added the proceeds to their after-tax income.<sup>15</sup> Using this measure, the percentage of individuals in financially vulnerable families remained virtually unchanged at 10% in 1984 and 1999 (Tables 3 and 4).

Once again, elderly unattached individuals became less financially exposed over the period. However, the opposite was true for families of recent immigrants.<sup>16</sup> In 1999, the chances of being in a family with low income and modest amounts of financial



**Chart A: While the overall proportion of persons in low income among families with no financial wealth remained virtually unchanged from 1984 to 1999, some groups saw increases.**



Sources: *Assets and Debts Survey, 1984; Survey of Financial Security, 1999*

wealth were four times the national average for individuals living in female lone-parent families (42%), and almost eight times the average for those in prime-aged families with no earner (74%). In contrast, chances were half the average for those in families whose major income recipient was elderly (4%) or a university graduate aged 35 to 54 (5%).

Of all persons in low-income families, roughly 70% were in families with not enough financial wealth to cover the low-income gap (Chart B). This proportion rose to at least 80% in very young families and lone-parent families, but dropped to 44% among elderly families. These estimates are conservative since they do not account for taxes that could be withheld when registered retirement savings plans are liquidated.

### Wealth distribution of low-income families

While many would agree that financial wealth is a good indicator of financial vulnerability, most studies of Canadian families who struggle financially or live in straitened circumstances have used data on low income. To what extent do low-income families have relatively low financial wealth?

As measured by median financial wealth, the 'typical' low-income family had \$300 to buffer income interruptions or face unexpected expenses in 1999 (Table 5). This is at least \$20,000 less than other families.<sup>17</sup> Some 75% had less than \$6,000 in assets that could be liquidated.<sup>18</sup> Others were more fortunate—10% had \$32,000 or more.

How did the financial vulnerability of low-income families change during the period? The ratio of the low-income gap to the low-income cutoff is often used by analysts to examine how the economic



**Table 3: Persons in families with low income and no financial wealth, by selected demographic characteristics**

	Persons in families with					
	Low income		Low income and no financial wealth*		Low income and financial wealth < income gap**	
	1983	1998	1983-84	1998-99	1983-84	1998-99
	%					
<b>All family units</b>	<b>13.8</b>	<b>13.6</b>	<b>5.0</b>	<b>5.3</b>	<b>9.8</b>	<b>9.5</b>
<b>Age of major income recipient (MIR)</b>						
Less than 25	28.8	47.5	13.3	22.7	24.6	38.9
Two or more persons	22.2	34.7	10.0	15.7	18.7	24.9
25 to 34	14.6	18.0	6.3	9.4	11.4	14.6
Couples with children under 18	11.2	14.1	4.9	5.8	8.5	10.5
35 to 44	10.5	12.9	3.8	4.8	8.0	8.8
Couples with children under 18	8.2	9.3	2.7	2.7	6.0	5.5
45 to 54	8.9	8.3	3.1	2.6	6.5	5.4
Couples with children under 18	7.7	7.3	3.0	1.9	5.2	4.6
55 to 64	12.2	12.1	3.1	3.2	6.5	6.6
65 and over	20.3	8.2	4.0	1.4	9.1	3.6
<b>Education level of MIR</b>						
No university degree	15.1	15.1	5.4	6.0	10.7	10.7
25 to 34	16.0	19.9	6.6	10.8	12.5	16.5
35 to 54	11.0	12.3	4.0	4.4	8.4	8.2
University degree	6.1	8.5	2.6	3.0	4.1	5.6
25 to 34	7.7	11.9	4.6	4.9	6.1	8.6
35 to 54	4.3	7.2	1.4	2.3	2.4	4.8
<b>Family type</b>						
Elderly unattached individuals	47.9	21.3	8.3	3.3	19.5	9.4
Other unattached individuals	34.1	37.6	14.7	16.8	26.9	30.0
Couples, no children	6.6	6.8	1.7	1.9	3.6	3.7
Couples, children under 18	9.8	10.3	3.8	3.5	7.1	6.7
Couples, children 18 and over	3.0	3.2	0.6	1.0	1.3	1.2
Elderly couples, no children	5.2	1.5	0.5	0.4	1.6	0.9
Lone-parent families	49.9	44.5	20.7	24.0	42.7	37.5
Female lone-parent	53.6	49.3	21.9	26.7	45.7	42.1
Other family types	14.9	9.8	5.8	3.5	12.1	5.7
<b>Immigration status of MIR</b>						
Canadian-born	13.6	12.2	5.2	5.1	9.9	8.6
Immigrants	14.9	17.9	4.2	6.1	9.6	12.3
Less than 10 years	23.1	35.6	7.3	12.8	15.7	25.6
10 years or more	12.9	11.3	3.4	3.7	8.2	7.4
<b>Families of two or more and MIR aged 25 to 54</b>						
No earners	91.8	83.7	42.6	38.4	86.1	73.7
One earner	17.0	21.8	6.4	8.7	12.0	15.0
Two or more earners	4.3	4.1	1.4	1.3	2.9	2.1
<b>MIR with long-term work limitation</b>						
No	..	9.8	..	3.9	..	6.6
Yes	..	30.1	..	12.9	..	24.1

Sources: Assets and Debts Survey, 1984; Survey of Financial Security, 1999

\* Zero or negative.

\*\* The income gap is the difference between a family's low-income cutoff and its after-tax income.

**Table 4: Persons in families with low income and no financial wealth, by province**

Province	Persons in families with					
	Low income		Low income and no financial wealth*		Low income and financial wealth < income gap**	
	1983	1998	1983-84	1998-99	1983-84	1998-99
	%					
Newfoundland and Labrador	21.9	14.8	10.4	9.1	17.6	13.1
Prince Edward Island	10.3	9.4	4.0	4.8	7.1	5.5
Nova Scotia	12.4	13.0	5.8	7.4	10.1	10.1
New Brunswick	18.9	11.7	10.1	5.9	14.8	8.7
Quebec	15.4	16.4	6.1	6.5	11.4	12.0
Ontario	12.2	11.5	3.9	4.5	8.2	8.1
Manitoba	13.8	15.3	5.0	6.8	10.2	11.6
Saskatchewan	12.8	11.2	4.7	4.6	8.0	7.3
Alberta	14.3	12.2	4.4	3.7	9.6	7.4
British Columbia	14.0	15.9	3.9	5.5	9.4	10.4

Sources: Assets and Debts Survey, 1984; Survey of Financial Security, 1999

\* Zero or negative.

\*\* The income gap is the difference between a family's low income cutoff and its after-tax income.

position of low-income families evolves over time. In 1984, it stood at 34%, indicating that, on average, individuals in low income were in families whose after-tax income was 34% below Statistics Canada's low-income cutoffs. It rose to 38% in 1999, suggesting some deterioration in the well-being of low-income families during this period.<sup>19</sup>

Between 1984 and 1999, the percentage of low-income families with no financial wealth rose from 35% to 40%. The average wealth of low-income families in the bottom 75% of the financial wealth distribution dropped slightly (about \$800 in 1999 dollars). Similar patterns were seen in the distribution of net worth. Thus, the average income gap ratio of low income families did not improve between 1984 and 1999. Neither did the average financial wealth nor the average net worth of families in the bottom 75% of the (financial) wealth distribution. Compared with their counterparts in the mid-1980s, many low-income families in the late 1990s were neither closer to the low-income cutoffs nor better off financially.

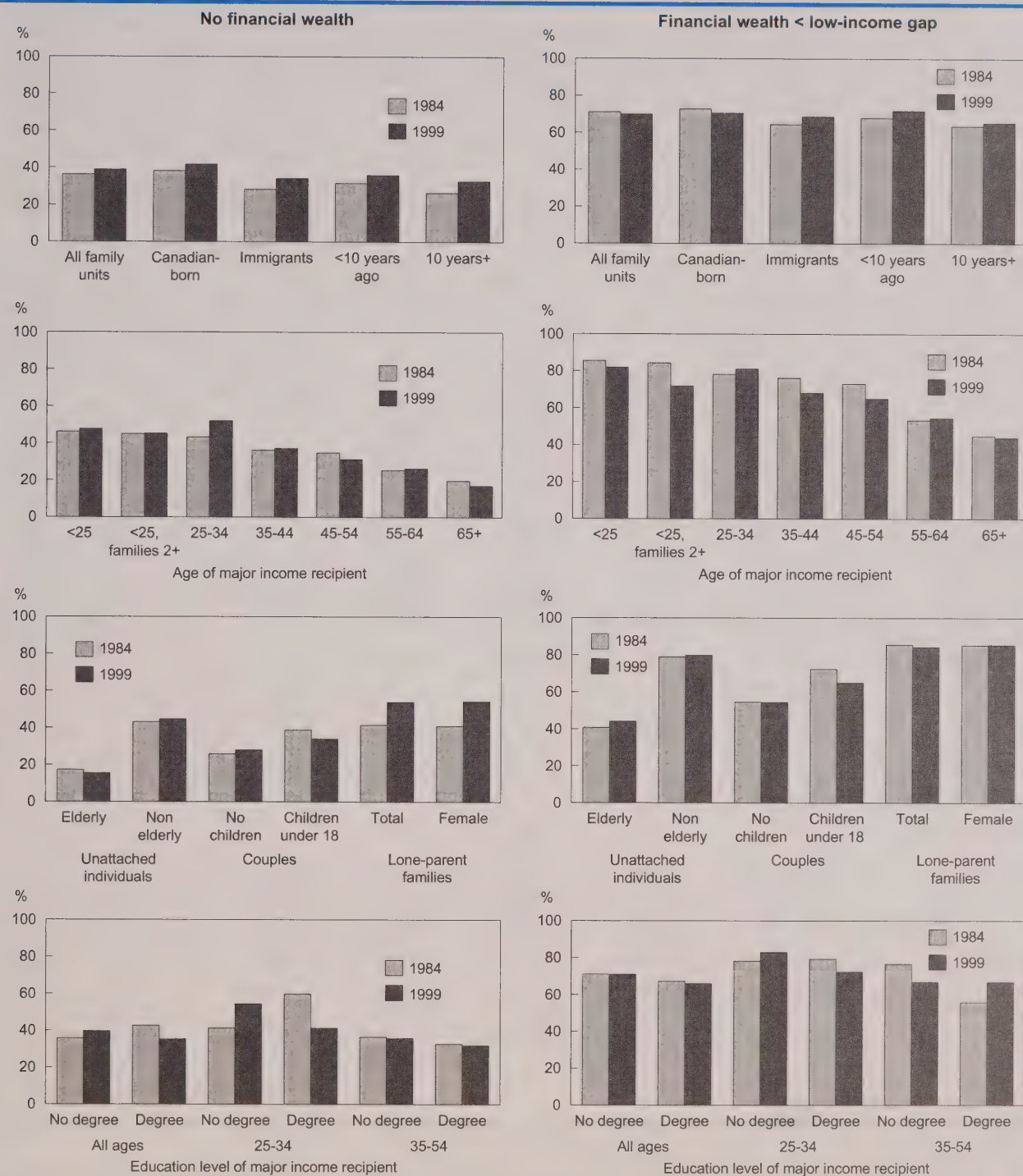
However, the opposite was true for the 10% richest low-income families—financial wealth and net worth rose at the 90<sup>th</sup> percentile. As a result, the proportion of low-income families with financial wealth of \$50,000 or more rose from 4% in 1984 to 7% in 1999.

The above numbers include families owning a business. Although representing only 11% of low-income families in 1999, these families may have greater wealth. Excluding them did not change the trend in the average income gap ratio or in the average financial wealth and net worth of low-income families in the bottom 75% of the (financial) wealth distribution (Table 6). However, it did lower the estimates of financial wealth and net worth for all low-income families.

The average financial wealth of low-income families with no business amounted to \$10,900 in 1999, much lower than the \$16,800 for all low-income families. Low-income families with no business had an average net worth of \$31,000, compared with \$51,700 for all low-income families. Three-quarters of low-income families with no business had less than \$3,800 in assets that could be liquidated or less than \$10,000 of net worth, compared with \$5,500 and \$25,000 when families with a business were included (Table 5).<sup>20</sup>

### Financial vulnerability of the unemployed

One would expect families who have recently experienced unemployment to be more financially vulnerable than other families. This may be so for at least two reasons. First, compared with those who remain employed, workers who experience unemployment

**Chart B: Persons in low-income families with little or no financial wealth**

Sources: Assets and Debts Survey, 1984; Survey of Financial Security, 1999



**Table 5: Wealth distribution\* of families**

	Low-income families		Non low-income families	
	1984	1999	1984	1999
	%			
<b>Persons in low income**</b>	<b>13.8</b>	<b>13.6</b>	...	...
<b>Persons in families owning a principal residence</b>	<b>32.9</b>	<b>27.8</b>	<b>74.2</b>	<b>75.9</b>
<b>Income gap/LICO† of persons in low income**</b>				
All families	34.2	38.4	...	...
Excluding families with negative after-tax income	31.6	33.8	...	...
<b>Financial wealth</b>				
≤ \$0	34.9	39.5	13.8	15.5
\$1 to 4,999	38.8	33.8	15.2	12.1
\$5,000 to 9,999	9.6	6.8	11.4	8.4
\$10,000 to 19,999	6.5	7.1	16.0	12.4
\$20,000 to 49,999	6.1	5.9	20.9	19.3
\$50,000 and over	4.4	7.0	22.8	32.5
	\$			
At 10 <sup>th</sup> percentile	-2,800	-7,400	-1,500	-3,000
At 25 <sup>th</sup> percentile	0	-800	3,500	3,500
At 50 <sup>th</sup> percentile	600	300	15,400	21,500
At 75 <sup>th</sup> percentile	5,800	5,500	44,800	71,600
At 90 <sup>th</sup> percentile	20,600	32,000	107,200	180,000
Average financial wealth	6,300	16,800	40,900	77,100
Average financial wealth of bottom 75%	-1,800	-2,600	10,100	15,700
<b>Net worth</b>				
	%			
≤ \$0	28.6	35.7	6.7	8.5
\$1 to 4,999	32.1	28.1	7.9	7.2
\$5,000 to 9,999	6.6	5.0	4.8	3.7
\$10,000 to 19,999	4.2	4.4	6.5	5.7
\$20,000 to 49,999	7.1	6.8	13.6	12.5
\$50,000 to 99,999	9.7	6.8	18.6	15.6
\$100,000 and over	11.7	13.3	41.9	46.7
	\$			
At 10 <sup>th</sup> percentile	-1,500	-6,500	1,500	600
At 25 <sup>th</sup> percentile	0	-200	18,300	19,500
At 50 <sup>th</sup> percentile	1,500	800	76,200	87,000
At 75 <sup>th</sup> percentile	34,100	25,000	167,600	218,600
At 90 <sup>th</sup> percentile	114,900	143,700	505,100	444,500
Average	37,600	51,700	149,500	202,600
Average of bottom 75%	2,000	-500	55,200	65,700

Sources: Assets and Debts Survey, 1984; Survey of Financial Security, 1999

\* In 1999 constant dollars.

\*\* Refers to 1983 and 1998.

† LICO: low income cut-off.

are often less educated and have a lower earnings potential, making them less able to accumulate substantial savings. Second, a family that has recently experienced a

period of unemployment may have been forced to liquidate some of its financial assets, thereby reducing its future financial wealth.<sup>21</sup>

The data confirm this view. In 1999, of all individuals living in families whose major income recipient had been unemployed for some time during the preceding year, more than 30% belonged to families with no financial wealth (Table 7). This percentage is twice as high as that of individuals living in families whose major income recipient had been working full year full time in 1998.

Furthermore, low-income rates were roughly 10 times higher among families with substantial unemployment (27 to 52 weeks) than among those with no unemployment. The implication is obvious. Of all individuals living in families of two or more persons whose major income recipient had worked full year full time in 1998, very few (2% at most) were financially vulnerable. In contrast, of all individuals living in families whose major income recipient was unemployed for at least 27 weeks in 1998, 20% belonged to low-income families with no financial wealth, and fully one-third belonged to low-income families with modest amounts of financial wealth.

## Conclusion

Even though the percentage of individuals living in families with low income and little or no financial wealth remained virtually constant between 1984 and 1999, some groups, such as recent immigrants, became more financially vulnerable to income interruptions and unexpected expenses. Others—specifically, elderly unattached individuals—improved their economic position.

The vast majority of low-income families had very little financial wealth. The financial wealth and net worth of low-income families in

**Table 6: Wealth distribution\* of families without a business**

	Low-income families		Non low-income families	
	1984	1999	1984	1999
	%			
<b>Persons in low income**</b>	<b>14.7</b>	<b>14.9</b>	...	...
<b>Persons in families owning a principal residence</b>	<b>26.9</b>	<b>20.9</b>	<b>70.8</b>	<b>72.5</b>
<b>Income gap/LICO† of persons in low income**</b>				
All families	32.1	35.3	...	...
Excluding families with negative after-tax income	31.9	34.3	...	...
<b>Financial wealth</b>				
≤ \$0	34.6	41.9	13.7	16.1
\$1 to 4,999	40.7	35.9	16.5	13.6
\$5,000 to 9,999	9.4	6.7	12.0	8.8
\$10,000 to 19,999	5.8	5.7	16.6	12.9
\$20,000 to 49,999	5.9	4.4	20.8	19.3
\$50,000 and over	3.7	5.4	20.4	29.3
	\$			
At 10 <sup>th</sup> percentile	-2,100	-7,200	-1,200	-3,000
At 25 <sup>th</sup> percentile	0	-1,000	3,200	2,500
At 50 <sup>th</sup> percentile	500	100	13,900	18,500
At 75 <sup>th</sup> percentile	4,800	3,800	40,000	61,600
At 90 <sup>th</sup> percentile	18,800	19,600	93,500	153,000
Average financial wealth	6,500	10,900	36,100	61,200
Average financial wealth of bottom 75%	-600	-2,700	9,600	13,300
<b>Net worth</b>				
	%			
≤ \$0	30.5	39.1	7.7	9.8
\$1 to 4,999	34.3	30.6	9.2	8.4
\$5,000 to 9,999	6.8	5.1	5.6	4.2
\$10,000 to 19,999	4.0	4.4	7.3	6.3
\$20,000 to 49,999	7.2	5.9	15.1	13.5
\$50,000 to 99,999	9.0	5.6	19.8	16.3
\$100,000 and over	8.4	9.3	35.4	41.5
	\$			
At 10 <sup>th</sup> percentile	-1,600	-6,800	800	0
At 25 <sup>th</sup> percentile	0	-600	12,900	13,300
At 50 <sup>th</sup> percentile	900	300	61,600	71,300
At 75 <sup>th</sup> percentile	18,400	10,000	136,600	180,000
At 90 <sup>th</sup> percentile	87,800	91,500	237,000	342,000
Average	25,000	31,000	98,500	138,800
Average of bottom 75%	800	-1,800	44,100	53,000

Sources: Assets and Debts Survey, 1984; Survey of Financial Security, 1999

\* In 1999 constant dollars.

\*\* Refers to 1983 and 1998.

† LICO: low income cut-off.

the bottom 75% of the financial wealth or net worth distribution did not rise during the period. Thus, at the end of the 1990s, the vast majority of low-income fami-

lies had no more savings to protect themselves against adverse events than did their counterparts in the mid-1980s.

While median net worth and financial wealth of other families rose 14% and 40% respectively between 1984 and 1999, that of low-income families did not increase. Therefore, the wealth gap between low-income families and other families rose during the period.

While very young families are relatively vulnerable, an increase in earnings as a result of labour market experience makes it likely that many of these families will have low income and little or no financial wealth for a relatively short period of time. However, this may not be true for female lone-parent families. Previous research has shown that, of all families of two or more persons, lone-parent families are by far the most likely to suffer persistent low income (Morissette and Zhang 2001). This severely limits their ability to build up savings and increase financial wealth. It also likely explains why they have by far the lowest average and median wealth compared with other families (Morissette, Zhang and Drolet 2002). The absence of a second earner poses a severe problem in these families where the parent, most often a woman, may be constrained to choose jobs with shorter hours or close to schools. Taken together, these findings suggest that the high financial vulnerability of many lone-parent families may be more than a temporary state.<sup>22</sup> Whether or not this may also be the case for families of recent immigrants is unclear.

In any given year, the most vulnerable families by far were prime-aged families of two or more persons with no earner. Surprisingly, only one-third of persons in these families had a major income recipient with a long-term work limitation or disability in 1999. The majority of the remaining families



Table 7: Financial vulnerability of families, by labour force status of major income recipient in 1998

	All families			Families of two persons or more		
	Worked full year full time	Unemployed 1-26 weeks	Unemployed 27-52 weeks	Worked full year full time	Unemployed 1-26 weeks	Unemployed 27-52 weeks
	%					
Persons in families with						
No net worth	7.1	24.5	29.0	6.3	22.2	25.9
No financial wealth	15.8	33.2	36.5	15.5	32.1	34.5
Low income	4.9	25.4	49.1	4.4	20.1	41.4
Low income and no financial wealth	1.4	12.8	24.0	1.2	10.7	19.7
Low income and modest financial wealth*	2.6	20.3	41.1	2.2	15.6	33.6

Source: Survey of Financial Security, 1999

\* Insufficient financial wealth to cover the low-income gap.

## Data sources and definitions

The 1984 **Assets and Debts Survey** (ADS) was a supplement to the May 1984 Survey of Consumer Finances. The 1999 **Survey of Financial Security** (SFS) was conducted from May to July 1999. Both samples were based on the Labour Force Survey frame and represented all families and individuals in Canada except residents of the territories, members of households located on Indian reserves, full-time members of the Armed Forces, and residents of institutions.<sup>2</sup> Data were obtained for all family members aged 15 and over.

The two surveys differed in some aspects. In the ADS, all information on components of assets (except housing) and debts was collected for each member of the family aged 15 years and over and then aggregated to the family level; in contrast, the SFS collected information directly at the family level. Unlike the ADS, the SFS had a supplementary high-income sample (consisting initially of about 2,000 households), which was included to improve the quality of wealth estimates.<sup>3</sup> The final ADS sample consisted of 14,029 families, the SFS sample 15,933. (Families include unattached individuals.)

To make the concept of wealth comparable between the two surveys, contents of the home, collectibles and valuables, annuities, and registered retirement income funds, which were not included in the 1984 survey, were excluded from the 1999 data.

The **net worth** of a family is the difference between its total assets and its total debts. Excluded are the value of work-related pension plans, and future entitlements to social security provided by the government in the form of Canada or Quebec Pension Plan benefits and Old Age Security. Also excluded is the family's human capital, measured in terms of the value of the discounted flow of

future earnings for all family members. Families with no net worth have debts equal to or greater than their assets.

In this article, **financial wealth** is defined as net worth minus net equity in housing and net business equity. It measures the stock of assets a family could use relatively quickly to finance consumption—without selling the house, its contents, or the business—in the face of unexpected expenses or a substantial decrease in family income. Financial wealth includes financial assets (such as chequing and savings accounts, guaranteed investment certificates, registered retirement savings plans) and real assets (such as cars, trucks, vans or recreational vehicles). Families with *no* financial wealth have zero or negative financial wealth.

Low income was measured using the low-income cutoffs published by Statistics Canada and based on 1992 family expenditure patterns. When producing low-income rates by province, the 1992 low-income cutoffs after tax and families' after-tax income were converted into 1998 dollars using province-specific consumer price indices.

While the low-income rates derived from the ADS and the SFS refer to 1983 and 1998 respectively, financial wealth and net worth are measured for 1984 and 1999.

Bootstrap methods were used to calculate the standard errors for SFS. Bootstrap samples could not be created properly for ADS because the original weights and other details of the sample were no longer available. To test the statistical significance of changes over time, the standard errors in ADS were assumed to be 25% larger than in SFS. Hypothetical standard errors for 1984 were calculated based on this assumption.



had a major income recipient who was either a female lone parent, or an individual experiencing long-term unemployment or who simply had withdrawn from the labour market. Among these female lone parents and other individuals, almost two-thirds had at most a high school diploma or some postsecondary education. This suggests that lack of education is likely a major factor underlying the financial vulnerability of many prime-aged families with no earner.

The absence of decline in the percentage of persons living in families with no financial wealth is somewhat surprising considering that the population was older at the end of the 1990s than during the mid-1980s and had had more time to accumulate savings.<sup>23</sup> Other factors must have played an offsetting role. The growing importance of lone-parent families and unattached individuals, the increased length of time young people stay in school before entering the labour market, the decline in real earnings of young men, easier access to credit, and changing preferences of consumers may have restricted savings or contributed to indebtedness, thereby reducing the net worth and financial wealth of some families.

### Perspectives

#### ■ Notes

1 Love and Oja (1977, 47) examined both income and wealth data and found that 'there are a substantial number of low-income families with significant wealth and also a large number of non low-income families of little wealth.' Wolfson (1979) explored the sensitivity of the Canadian distribution of family income to alternative definitions of income, including wealth in the form of an annuity equivalent, and incorporating home ownership in the form of imputed rent. As expected, he found that defining income to include the value of an annuity that could be purchased by liquidating all net worth leads to an improvement in the economic position of the elderly.

2 These include institutions such as penal institutions, psychiatric hospitals, orphanages, and seniors' residences.

3 Having a high-income supplement in 1999 increases the precision of wealth statistics (for example, average, median, and inequality measures) compared to ADS, while still leaving them unbiased (like those of ADS).

4 All these changes are statistically significant at the 5% level (two-tailed test).

5 Prime-aged families are defined as those whose major income recipient is aged 25 to 54.

6 Of all persons living in families with no financial wealth in 1984 (1999), 51% (44%) belonged to families who owned a principal residence. The corresponding percentages for persons living in families with positive financial wealth are 72% and 75% for 1984 and 1999 respectively.

7 In 1984, families with no financial wealth who were in low income had an average after-tax income of \$10,109 (in 1998 dollars). Families with no financial wealth who were not in low income received at least three times as much with an average after-tax income of \$38,154. The corresponding amounts for 1999 were \$10,485 and \$37,425.

8 The drop likely reflects enhancements to Old Age Security, Guaranteed Income Supplement, and Provincial Income Supplements that took place during the period and led to a substantial reduction of low-income rates among the elderly.

9 This percentage is slightly higher than the 12.1% estimate from the 1998 Survey of Labour and Income Dynamics.

10 In 1999, this proportion was as high as 54% in female lone-parent families and as low as 17% in elderly families. Median financial wealth of low-income families with positive financial wealth amounted to \$3,400 in 1999.

11 The decrease in the proportion of elderly unattached individuals having low income and no financial wealth is statistically significant at the 1% level, while the decrease observed in New Brunswick is statistically significant at the 7.5% level.

12 Similar patterns are obtained when provincial low income rates are calculated using Canada's consumer price index rather than province-specific consumer price indices.

13 Of all persons living in low-income families in Newfoundland and Labrador, 47% belonged to families with no financial wealth in 1984. This percentage rose to 61% in 1999.

14 The increases observed for these families are statistically significant only at the 15% level.

15 The 1999 wealth figures were converted into 1998 dollars and added to after-tax income received in 1998 to make this calculation.

16 Among families of recent immigrants, the increase in the percentage of persons living in families with low income and insufficient financial wealth to cover the low-income gap is statistically significant at the 1% level. Among very young families, the increase observed is not statistically significant at conventional levels.

17 The median financial wealth of other families was \$21,500 in 1999.

18 About 13% had more than \$6,000, but these families had a major income recipient aged at least 45 and so had had a fairly significant period of time to build up their savings. Of the remaining 12%, roughly one-third owned a business. When collectibles and valuables were added to financial wealth, 75% of low-income families had less than \$6,500 of relatively liquid assets.

19 If families with negative after-tax income are excluded, the increase was more moderate, from 32% to 34%.

20 Among families with no business, the proportion of individuals living in low-income families with no financial wealth amounted to 5.3% in 1984 and 6.4% in 1999. For low-income families with modest financial wealth, the figures were 10.7% and 11.3%.

21 A third reason is that experiencing unemployment decreases family income during the current year and increases chances of being in low income during that year.

22 Presumably because of their relatively low levels of both income and wealth, 7% of female lone-parent families had to pawn or sell some of their possessions in 1998, and 32% were behind two months or more in a bill, loan, rent, or mortgage payment. These proportions are much higher than those for the whole population—2% and 14% respectively.

23 Using the Survey of Labour and Income Dynamics (SLID)—instead of the Survey of Financial Security—does not alter the conclusion regarding the absence of an empirically significant decline in the percentage of persons in low-income families with no financial wealth. This percentage equals 4.7% in 1999 (rather than 5.3%) if the low-income rate obtained from SLID (12.1%) is used. Similarly, the percentage of persons in low-income families with insufficient

financial wealth to cover the low-income gap in 1999 equals 8.5% (rather than 9.5%) using SLID. Calculating the low-income rates at the end of a recession in 1983 and in the middle of an expansionary phase in 1998 would also lead one to expect a decrease in the percentage of persons living in low-income with no financial wealth.

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# Falling behind

Wendy Pyper

**T**HE HIGH LEVEL OF CONSUMER DEBT has raised some concerns. In October 2001, some 44 million Visa and MasterCard credit cards were in circulation in Canada, with \$39 billion in outstanding balances (Canadian Bankers Association 2002). In 1998, almost 38% of families reported having outstanding credit card or instalment debt. For younger families in which the major income recipient (MIR) was aged 25 to 34, the figure was 50%. Also, many families held student loans—31% of families with a MIR under 25 (Statistics Canada 2001).

The inability of a family to meet its immediate financial commitments may be a warning sign of more serious trouble. With a downturn in the business cycle, which may increase job losses, the potential for widespread difficulties is obvious. To meet the cost of missed bill payments, a family may need to increase its debt. However, because of its poor credit rating, the family may end up borrowing from lenders of last resort, who charge very high interest. The extra burden in the form of increased credit costs becomes part of a downward spiral that could eventually force the family to seek protection in personal bankruptcy. Declaring bankruptcy results in financial hardship not only for the individuals involved, but also for creditors in terms of legal and other costs. Creditors then pass the losses on to customers, either through increased fees or higher interest rates.

Using the 1999 Survey of Financial Security (SFS), this article examines families that fell two or more months behind in a bill, loan, rent or mortgage payment (see *Data source and definitions*). How does the incidence vary by family type, and what are the demographic and socioeconomic characteristics of these families?

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## What do we know already?

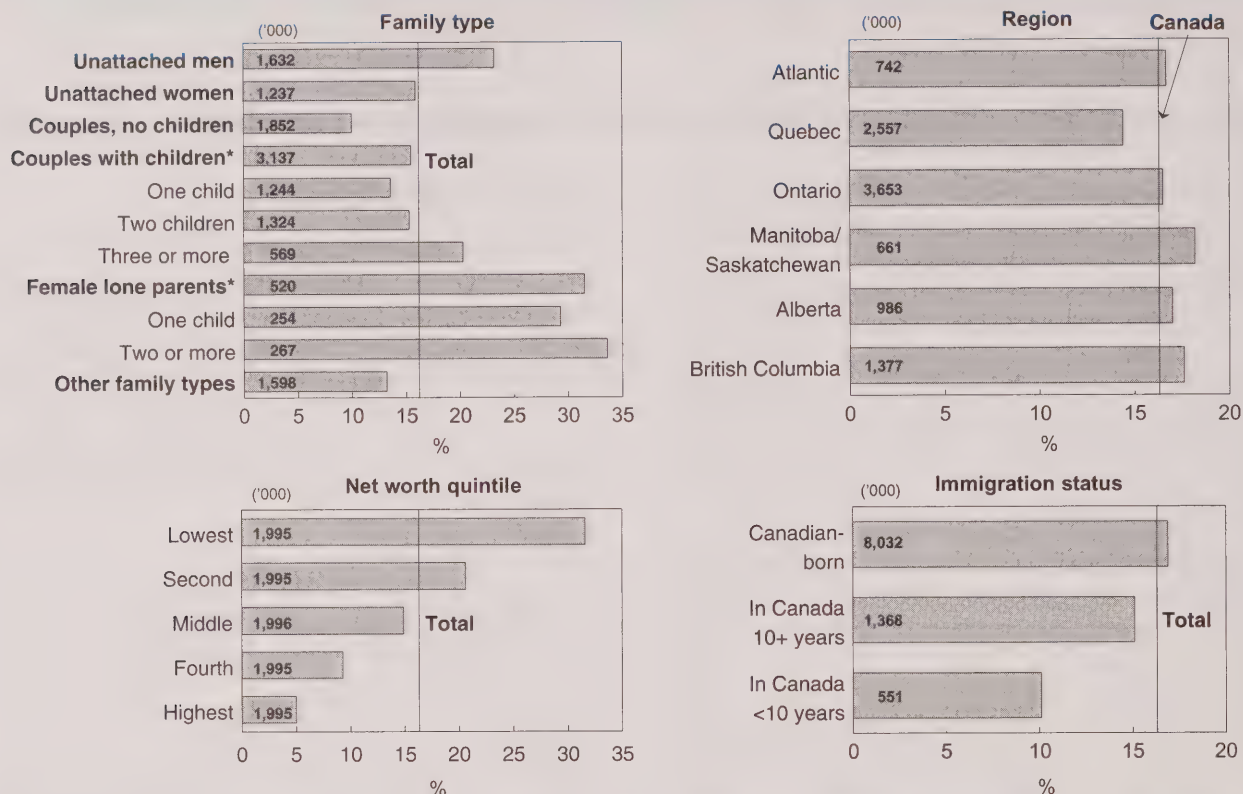
Although not strictly comparable, 1998 American data found that 8.1% of families with debt were 60 days or more behind in a payment at least once during the year (Kennickell, Starr-McCluer and Surette 2000). The incidence of falling behind ranged from 15.1% for the lowest income group to only 1.5% for the highest. Other important characteristics were age of the head of the family and net worth (see *American Survey of Consumer Finances*).

The American literature also deals with delinquency in credit card payment (Stavins 2000). The probability of being delinquent (behind in payments by two months or more) varies as a function of various individual and family characteristics. The strongest factors that increase the probability of delinquency are having filed for bankruptcy in the past and being unemployed at any point during the previous 12 months. Conversely, factors that reduce the probability of delinquency include being married and having health insurance, as well as having high income and net worth. Being older and having more education are also associated with lower probabilities.

## One-third of female lone-parent families struggled in 1998

Even though 1998 was a good year economically, one in six families with a MIR aged less than 65 fell behind two months or more in a bill, loan, rent or mortgage payment (Chart A).<sup>1</sup> However, the incidence of falling behind showed considerable variation by family type. Less than 1 in 6 couples with children under 18 fell behind in a payment, compared with almost 1 in 3 female lone-parent families. For unattached men, the rate was almost 1 in 4, while unattached women had about the same rate as couples with children. Couples without children had the lowest incidence (10%). Not surprisingly, difficulty increased with the number of children under 18 living at home. For example, the rate varied from 14% for families with one child to



**Chart A: The incidence of falling behind varied most by net worth and family type.**

Source: Survey of Financial Security, 1999

\* Children under 18 living at home.

20% for those with three or more children. This pattern also held true for female lone-parent families, but the variation was not as pronounced.

The incidence of falling behind varied only slightly by province. Overall, Quebec had the lowest rate (14%) while British Columbia, and Manitoba and Saskatchewan had the highest (18%). The rate also varied depending on the immigration status of the MIR. Families in which the MIR immigrated to Canada less than 10 years ago were the least likely to fall behind (1 in 10), compared with roughly 1 in 6 Canadian-born and long-term immigrant families (in Canada for at least 10 years).

Since the SFS contains information on both assets and debts of families, net worth can be determined. When families are placed in quintiles based on their net worth, those in the bottom quintile (with negative or low net worth) show a six times higher incidence of falling

behind than those at the top of the distribution. Somewhat surprisingly, 5% of families in the top of the distribution also fell behind.

### Youth and the less educated more likely to fall behind

The incidence of missing payments dropped steadily as the age of the MIR increased (Table 1). One-quarter of young families (MIR less than 25) fell behind, compared with only 7% of older families (MIR aged 55 to 64). A similar pattern was observed for each family type, with the youngest families being roughly three times more likely to have fallen behind than the oldest in all cases. Variation existed within each age group. For example, among young families, couples without children had the lowest rate at only 18%, compared with over one-half of female lone-parent families.

**Table 1: Incidence of falling behind, by family type and selected characteristics, 1998**

	All family types	Unattached men	Unattached women	Couples without children	Couples with children*	Female lone parents*	Other family type
	%						
<b>Total</b>	<b>16.3</b>	<b>23.2</b>	<b>15.9</b>	<b>10.0</b>	<b>15.5</b>	<b>31.5</b>	<b>13.2</b>
<b>Age of MIR</b>							
Under 25	25.0	30.2 <sup>E</sup>	F	18.3 <sup>E</sup>	31.4 <sup>E</sup>	53.0	23.1 <sup>E</sup>
25 to 34	21.9	28.3	22.0 <sup>E</sup>	14.3	20.3	33.2	18.6 <sup>E</sup>
35 to 44	17.3	22.7	16.0 <sup>E</sup>	14.2	14.5	31.1	16.0
45 to 54	12.3	17.2	14.4 <sup>E</sup>	7.3 <sup>E</sup>	11.7	F	12.8
55 to 64	7.1	9.3 <sup>E</sup>	9.8 <sup>E</sup>	5.9	F	F	5.5 <sup>E</sup>
<b>Education of MIR</b>							
Less than high school	20.4	28.7	21.3 <sup>E</sup>	8.9	23.1	35.6	14.2
Graduated high school	18.6	26.1	19.4 <sup>E</sup>	12.4	17.3	29.4	15.1
Non-university certificate	16.8	23.3	15.1	11.3	16.6	31.7	14.0
University degree or certificate	9.4	14.3 <sup>E</sup>	F	6.9 <sup>E</sup>	7.4	26.1 <sup>E</sup>	8.8 <sup>E</sup>
<b>Home ownership status</b>							
Own mortgage-free	5.7	F	F	3.3 <sup>E</sup>	5.7	F	5.9 <sup>E</sup>
Own with mortgage	13.6	14.7 <sup>E</sup>	F	9.4	13.5	20.9 <sup>E</sup>	16.0
Do not own	24.0	26.8	17.7	18.1	27.8	35.8	20.5

Source: Survey of Financial Security, 1999

\* Children under 18 living at home.

Rates varied substantially with the MIR's education level. Families in which the MIR had not graduated from high school had a rate of 20%, more than double that of families in which the MIR was a university graduate (9%). For couples with children, less than high-school graduation resulted in a rate three times higher than that of families with a university graduate as the MIR. At each education level, female lone-parent families showed substantially higher rates, reaching some 36% of those with less than high school graduation. On the other hand, couples without children had consistently lower rates, indicating that the presence of children may strain resources. These couples may also be older (without children under 18 living at home), so the lower rates could also be related to age.

One in 4 families who did not own their home fell behind in 1998. Owners without a mortgage had a significantly lower rate—less than 6%. This compares with almost 14% for owners with a mortgage. This pattern existed across all family types, with couples without children generally having the lowest rates. Mortgage-free owners have proportionally lower housing expenditures than do owners with mortgages or renters (Lefebvre 2002). This potentially increases the amount of disposable income available to pay other bills.

### Previous financial trouble, future financial trouble

Bankruptcy is a strong indicator of financial trouble. The SFS asks if anyone in the family has ever declared bankruptcy.<sup>2</sup> For most family types, the rate of falling behind for those who had previously declared bankruptcy was roughly twice as high as for those who had not—30% compared with 15% (Chart B). For unattached women, the rate was 41%, almost three times as high. Although the rate for female lone-parent families was high at over 40%, the rate was high even for those who had never declared bankruptcy (31%).

### Income and keeping on top of bill payments

How do the incomes of families who have fallen behind and those who have not compare? One would expect higher income to provide families with the monetary resources to stay on top of their bills. On the whole, the median income of those who made their payments on time was almost 50% higher than the income of those who did not—\$39,000 versus \$26,400 (Table 2). This difference is also apparent for unattached men but is much less pronounced for unattached women (only 19%). In all other types of families, those who did not fall behind had at least 25% higher median income than those who did.



## Data source and definitions

The **Survey of Financial Security (SFS)**, which covered roughly 16,000 households, gathered information on the assets and debts of families and unattached individuals between May and July 1999. Information was collected on the value of all major financial and non-financial assets, as well as money owing on mortgages, vehicles, credit cards, student loans, and other debts. The SFS included a 'behaviours and attitudes' section, which questioned respondents about the way they managed their finances. Information from this section was used to determine if a family had fallen behind in a payment.

**Family:** An economic family or an unattached individual. An economic family is a group of two or more persons living in the same dwelling who are related to each other by blood, marriage, common law, or adoption. This study looked at families whose major income recipient (MIR) was aged less than 65, since older families have very little debt compared with the non-elderly.

**Unattached individuals:** Persons living alone or with unrelated individuals, such as roommates or lodgers.

**Couples without children:** Couples (legally married, common-law, or same-sex) with no other relatives present.

**Couples with children:** Couples with at least one child under 18. Children may be by birth, adopted, step or foster. Other relatives may also be present.

**Female lone parent:** A mother living with at least one child under age 18.

**Other family types:** This includes couples living with children 18 or older, male lone-parent families, and other related persons living together (such as siblings).

The **major income recipient (MIR)** is the person in the family with the highest income before tax.

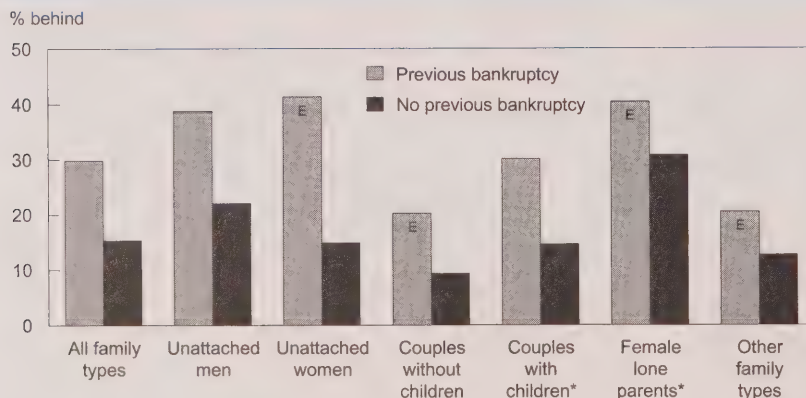
**Fallen behind:** Being two or more months behind in a bill, loan, rent or mortgage payment. In this article, 'payment' refers to any of these types of payments. The question used to determine if a family had fallen behind was:

*In 1998, were (any of) you ever behind two months or more in a bill, loan, rent or mortgage payment?*

Respondents were not asked the reason for falling behind. Missing a payment because of being out of town on holidays is quite different from missing a payment for lack of funds. As well, the question does not distinguish between the types of payments, the consequences of which can vary widely. For example, falling behind in a mortgage payment may lead to foreclosure, resulting in the loss of a house and the equity a family may have built up. However, falling behind in a telephone bill may lead to interest charges and eventually the disruption of service—a far less serious result.

**Net worth:** The dollar value difference between total assets and total debts in 1999 dollars—reflecting the value at the time of the survey. Income, however, is reported for the 1998 calendar year in 1998 dollars.

**Chart B: Previous bankrupts were more likely to fall behind in payments.**



Source: Survey of Financial Security, 1999

\* Children under 18 living at home.

However, income is related to many other family characteristics such as age and education, which may account for the differences.

## What really matters?

Certain types of families clearly found it difficult to meet their financial obligations—possibly for one or both of two basic reasons. The first is the inability to meet expenditures—a family may simply not have enough income or assets to pay the bills. Periods of unemployment or the number of dependent children may make it difficult to make ends meet. The second reason involves financial management skills. However, many



**Table 2: Median after-tax income, by family type, 1998**

	Total	Fallen behind (A)	Not fallen behind (B)	Relative difference (B-A)/A
		\$		%
<b>All families</b>	<b>36,700</b>	<b>26,400</b>	<b>39,000</b>	<b>47.7</b>
Unattached men	19,900	14,300	21,500	50.3
Unattached women	15,700	13,500	16,100	19.3
Couples without children	44,700	35,300	45,900	30.0
Couples with children*	48,100	38,800	49,700	28.1
Female lone parents*	20,900	17,500	22,700	29.7
Other family types	50,700	42,000	52,300	24.5

Source: Survey of Financial Security, 1999

\* Children under 18 living at home.

characteristics are interrelated. For example, income may reflect the educational attainment in families; similarly, young families generally do not own their home mortgage-free. In order to get a clearer picture of the relative importance of various characteristics, a logistic regression was used (see *Logistic regression*). This allowed, for example, the relationship between income and falling behind to be examined, with all other specified characteristics held constant.

### Older, more educated less likely to fall behind

Characteristics of the MIR that remained important after other characteristics such as family type, income and net worth were controlled for included age, education and unemployment. Relative to the reference group (MIR aged 25 to 34), older families (MIR 45 or over) and older unattached individuals (35 or older) were less likely to have difficulty making timely payments (Table 3). This may indicate that better money management skills come with age. Families in which the MIR had a university degree had a 40% lower probability of falling behind than those in which the highest level was high-

school graduation. Families of recent immigrants (those in which the MIR had immigrated within the past 10 years) were less likely to have fallen behind than Canadian-born families or immigrant families who had been in Canada for more than 10 years. Any period of unemployment<sup>3</sup> of the MIR was related to higher probabilities of

falling behind, varying from 1.4 (for married couples) to 1.9 times (for unattached individuals) as likely as those with no unemployment spells. This difference is not surprising, since couples may be supplementing the income of the MIR with spousal income. Couples in which the spouse experienced unemployment were more likely to have fallen behind.

### Number of children associated with falling behind

Larger families (three or more children) differed significantly from families with two children (1.2 times as likely to have fallen behind), even after key characteristics such as income and age were controlled for. Perhaps the time crunch some large families experience is important when it comes to paying bills on time. For couples, the absence of children was associated with a lower probability of falling behind (0.6 or 40% less than for families with two children).

## American Survey of Consumer Finances

The **Survey of Consumer Finances** (SCF), conducted by the Federal Reserve Board in the United States, asks families about their income, assets and debts. It also has several questions related to falling behind. Respondents are asked if loan or mortgage payments were made as scheduled, and if they were ever behind in payments by two months or more.

Several important differences between the American SCF and the Canadian Survey of Financial Security (SFS) make direct comparison difficult. For example, the definition of a family is somewhat different. In the SFS, the unit of analysis is either an economic family or unattached individual (see *Data source and definitions*). In the American SCF, the unit of analysis is the 'primary economic unit' (PEU). The PEU consists of an 'economically dominant' single individual or couple in a household and all other individuals in the household who are financially dependent on that individual or couple. For more details on the American SCF, see *Codebook for 1998 Survey of Consumer Finances*, listed in the references.

Another difference is the question used to measure falling behind. The SFS asks if any family members were ever behind two months or more in a bill, loan, rent or mortgage payment. However, the American question restricts the payments to credit cards, mortgages on primary residences and vacation properties, and loans for purchasing all types of consumables such as vehicles, appliances, furniture, and those related to education. Bills such as hydro, cablevision, and insurance are not included. This may explain some of the difference between the American and Canadian results.

**Table 3: Relative probability of falling behind in payments, 1998**

	All families	Couples	Unattached individuals
<b>MIR:</b> Less than 25	0.8	n.s.	0.7*
25 to 34	1.0	n.s.	1.0
35 to 44	0.9	n.s.	0.8*
45 to 54	0.8*	n.s.	0.6*
55 to 64	0.5*	n.s.	0.4*
Less than high school	1.1	1.1	1.2
Graduated high school	1.0	1.0	1.0
Non-university certificate	0.9	1.1	0.8
University degree or certificate	0.6*	0.6*	0.6*
Canadian-born or immigrated 10 or more years ago	1.0	1.0	1.0
Immigrated less than 10 years ago	0.4*	0.3*	0.3
Unknown immigration status	1.2	1.5	0.9
Female	n.s.	n.s.	1.0
Male	n.s.	n.s.	1.2
No unemployment	1.0	1.0	1.0
Some unemployment	1.6*	1.4*	1.9*
<b>Spouse:</b> No unemployment	n.s.	1.0	...
Some unemployment	n.s.	1.5*	...
Unattached men	1.2	...	...
Unattached women	0.9	...	...
Couples without children	0.9	...	...
Couples with children**	1.0	...	...
Female lone parents**	1.3*	...	...
Other family types	1.3	...	...
No children	0.7	0.6*	...
One child	0.9	0.8	...
Two children	1.0	1.0	...
Three or more children	1.2*	1.3*	...
Outstanding student loans	1.4*	1.4*	1.4*
No outstanding student loans	1.0	1.0	1.0
Previous bankruptcy	1.6*	1.4*	2.1*
No previous bankruptcy	1.0	1.0	1.0
<b>After-tax income:</b> At 25 <sup>th</sup> percentile	1.1*	1.1*	n.s.
At median	1.0	1.0	n.s.
At 75 <sup>th</sup> percentile	0.8*	0.9*	n.s.
<b>Net worth:</b> At 25 <sup>th</sup> percentile	1.1*	1.1*	1.0*
At median	1.0	1.0	1.0
At 75 <sup>th</sup> percentile	0.9*	0.9*	0.8*
Homeowner, no mortgage	0.6*	0.5*	n.s.
Homeowner with mortgage	1.0	1.0	n.s.
Do not own	1.2*	1.5*	n.s.
Atlantic	0.8	0.9	n.s.
Quebec	0.7*	0.6*	n.s.
Ontario	1.0	1.0	n.s.
Manitoba/Saskatchewan	1.0	1.1	n.s.
Alberta	1.0	1.0	n.s.
British Columbia	1.0	1.0	n.s.

Source: Survey of Financial Security, 1999

Note: Probabilities are calculated at the mean values of the explanatory variables with the exception of after-tax income and net worth. For these variables, the median values are used. Probabilities are calculated relative to a reference group.

\* Significantly different from the reference group at the 5% level.

\*\* Children under 18 living at home.

n.s. No categories were statistically significant, so this variable was not included in the logistic regression.

Although differences appeared in the incidence of falling behind by family type (Chart A), most of these were eliminated when the characteristics of the families were controlled for. The one exception was female lone-parent families who were 1.3 times more likely than couples with children to have fallen behind.

Having outstanding student loans was also associated with a higher chance of falling behind. For each population, those with student loans were 1.4 times more likely than those without to have trouble making payments on time.

#### Previous bankruptcy a significant factor

As noted earlier, families who had experienced bankruptcy differed significantly from those who had not. After other characteristics were controlled for, families with a previous bankruptcy were 1.6 times more likely to have trouble keeping up with their payments. This is consistent with other findings (Stavins 2000). For unattached individuals, those who had declared bankruptcy were twice as likely to have fallen behind in payments, suggesting a lack of money management skills.

#### Income, net worth significant but with no large effects

After-tax income and net worth, while significant in most cases, were associated with only small differences in the probability of falling behind. The probability for families at the 25<sup>th</sup> percentile of the after-tax income distribution (\$21,100) or at the 75<sup>th</sup> percentile (\$55,700) was only slightly different than for median-income families. Similarly, families with a net worth at the 25<sup>th</sup> percentile (\$11,700) or at the 75<sup>th</sup> percentile (\$192,400) showed only a slight



## Logistic regression

Logistic regression models are used to investigate the relationship between a discrete outcome (in this case, falling behind or not) and a set of explanatory variables. Coefficients from the model give the probability of falling behind for a selected level of an explanatory variable (compared with the reference group), when all other explanatory variables are held constant. The relative probability is then calculated, expressing the probability relative to the reference group. This article used bootstrap weights to estimate the standard errors to account for the complex sample design used in the SFS.

Three populations were examined. All non-elderly families were modelled, and then couples (with or without children) and unattached individuals were modelled separately. The population of lone-parent families was too small to examine separately and the population of 'other family types' was too diverse.

Extreme values exist in both income and net worth, and they can affect the results of the logistic regression. Because of this, the top and bottom 1% of families, based on after-tax income and net worth, were excluded.

difference relative to families at the median (\$36,700). Falling behind may be more a reflection of unmeasured characteristics such as attitude or management skills (time or money) than a symptom of lack of financial resources.

## Summary

One in 6 Canadian families had difficulty making timely payments in 1998, with vast differences between family types. But, after various characteristics were controlled for, only female lone-parent families were significantly different from other families. These families were 1.3 times as likely as couples with children to have fallen behind. The number of children in the family also mattered, indicating that time resources may be stretched in these families. Families with an older MIR were less likely to have fallen behind, as were those in which the MIR was a university graduate.

Financial characteristics of families are also related to falling behind in payments. Families with a previous bankruptcy were 1.6 times more likely than other families to have fallen behind. Despite being significant, income and net worth had only small effects on the probability of falling behind after other family characteristics were controlled for.

Widespread concern that consumers may be pushing the limits in terms of debt level—due in part to the proliferation of credit cards—and that they may be unable to repay their debts continues to be raised. Understanding who is most at risk of financial difficulty may sharpen the focus of campaigns to improve financial management.

## Perspectives

### Notes

- 1 This rate is high relative to the American result of 8.1%, but important differences make direct comparison impossible (see *American Survey of Consumer Finances*).
- 2 This question does not ask how long ago the bankruptcy occurred.
- 3 'Unemployment' refers to time without a job or business but looking and available for work.

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# Housing: An income issue

Sophie Lefebvre

**H**OUSING IS IMPORTANT to quality of life—in addition to enough food and clothing, people expect to have a decent dwelling. But some households face affordability problems and may be forced to choose between appropriate housing and other necessities. Living in inappropriate housing can have permanent consequences, especially on children. A study by the Canadian Council on Social Development found that housing that is crowded or in disrepair has negative effects on children's health, behaviour and development (Jackson and Roberts 2001).

The housing market has changed during the last two decades. Some of the transformations affected the supply side of the rental market. Investments in social housing diminished dramatically between 1985 and 1997 (Cooper 2001) and, at the same time, construction of private rental dwellings fell. These factors, among others, led to fewer available rental units. According to the Canada Mortgage and Housing Corporation (CMHC), the average rental vacancy rate in metropolitan centres fell from 4.3% in 1996, to 1.6% in 2000, to 1.1% in 2001.

This article examines how Canadians were housed in 2000. What percentage lived in owner-occupied homes? Were their homes in good condition? Was the size suitable for their needs? And, what proportion of their income was spent on housing? (see *Data source and definitions*).

## Ownership is tied to location and income

Homeownership is a long-term investment that can help maintain one's standard of living over the life cycle (see *Life cycle and housing*). Owners of mortgage-free homes can generate additional funds in retirement by

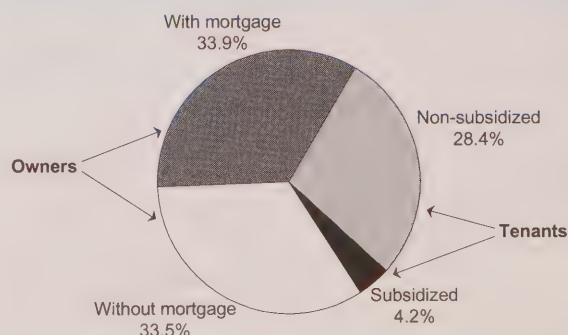
trading down to a less expensive home or negotiating a reverse mortgage, which provides regular annuity payments.<sup>1</sup>

In 2000, 67% of Canadian households owned the dwellings they lived in, while the remainder were tenants, with 4% living in government-subsidized housing<sup>2</sup> (Chart A). Half of owners had a mortgage, while the other half were mortgage-free.

Ownership varied considerably by region and community size. In urban centres, 64% of households owned their dwelling, compared with 86% in rural areas (population under 10,000) (Table 1). Having a mortgage also varied by area—51% of rural owners were without mortgages compared with 30% of urban dwellers. This may be because the lower real estate value in small towns enables households to pay off their mortgage faster, and because farms tend to be passed down from one generation to the next.

The Atlantic and Prairie regions had the highest ownership rates (above 75%). The Atlantic region and Manitoba-Saskatchewan also had the highest level of

**Chart A: Two-thirds of households lived in owner-occupied homes.**



Source: Survey of Household Spending, 2000

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## Data source and definitions

This article used the 2000 **Survey of Household Spending (SHS)**—an annual survey on household expenditures, income, dwelling characteristics, and household facilities. Personal interviews were conducted with approximately 15,000 households throughout the 10 provinces. Collection took place between January and March 2001, and income and spending figures were obtained for January 1 to December 31, 2000. The SHS has been conducted since 1997 and replaced both the periodic Family Expenditure Survey and the Household Facilities and Equipment Survey.

This study was limited to households in 2000 consisting of one economic family that rented or owned its dwelling throughout the entire year, reported positive housing costs and income, and had a housing expenditure ratio (see below) not exceeding 100%. These households represented 90% of the total SHS estimate.

A **household** is a person or group of persons occupying one dwelling unit. A full-year household has at least one full-year member.

**Household after-tax income** is the sum of the after-tax incomes of all members of the household aged 16 and over in 2000. It comprises income from wages and salaries, self-employment, investments, government transfer payments, and pensions. Income information for part-year members was collected for the portion of the year during which they were members of the household.

**Adjusted after-tax income** is adjusted for household size, composition and part-year members. The goal is to be able to compare all households on a common income basis by allowing for economies of scale. The adjustment is the sum of individual factors:

- One adult is counted as 1, each additional adult as 0.4.
- Each child under age 16 is counted as 0.3—except in a family with only one adult, where the first child is counted as 0.4.

Each individual factor is also adjusted by the portion of the year (2000) this member was part of the household to allow the individual factor to be representative of a one-year period.

### Examples:

	Household		
	A	B	C
Size and composition	2 adults, full year	2 adults, one 26 weeks	2 adults, 2 children, full year
After-tax income	\$30,000	\$30,000	\$40,000
Adjustment	1 + 0.4 = 1.4	1 + 0.4(26/52) = 1.2	1 + 0.4 + 2(0.3) = 2
Adjusted income	30,000/1.4 = \$21,429	30,000/1.2 = \$25,000	40,000/2 = \$20,000

Households A and B had the same after-tax income, but since one member of B was present for only 26 weeks, the available income for this household was divided by a smaller adjustment so that household B had a higher income than household A. Household C had the highest after-tax income, but given the size and composition of the household, it had the lowest income available.

**Adjusted after-tax income quintiles** are obtained by ranking households in ascending order of adjusted household after-tax income, and partitioning them into five equal groups.

### Household composition:

- One-person (male or female)
- Couples (with or without children under 18)
- Lone parents (male or female) with children under 18
- Other households

'Other households' consist of relatives living together who do not fall under the definitions above—for example, a brother and sister. Also included in this category are lone parents with all children 18 and over.

**Housing expenditures:** Yearly spending on principal accommodation. For **owners**, these included regular mortgage payments, property taxes, utilities (water, fuel and electricity), and condominium charges. For **renters**, they included utilities (water, fuel and electricity), if not included in the rent.

**Housing expenditure ratio:** Housing expenditures divided by household after-tax income.

**In need of major repairs:** Households were asked to assess the condition of their dwelling by responding to a question on need for repairs. To guide the respondent, the question included detailed examples of regular maintenance, and minor and major repairs. The requirement was that a dwelling should need only maintenance, or at most minor repairs to be in good condition. This norm is similar to the adequacy norm defined by Canada Mortgage and Housing (CMHC 1991).

**Unsuitable in size:** Housing that does not meet the suitability norm defined in CMHC 1991:

- There can be no more than two persons per bedroom.
- Parents have a bedroom separate from their children.
- Household members aged 18 or over have separate bedrooms unless married or cohabiting as spouses.
- Dependants of the opposite sex aged 5 or more do not share a bedroom.

A **low-income household** in this analysis has an adjusted after-tax income less than 50% of the median adjusted after-tax income in its area. Twenty different areas were defined. Each of the 10 provinces was divided into urban and rural to allow for the difference between urban and rural housing markets. *Note: This is not an official methodology used by Statistics Canada to define low-income households.*



**Table 1: Characteristics of households by ownership status**

	Total households '000	Owners			Tenants
		Total	With mortgage	Without mortgage	
			%		
<b>Total</b>	<b>10,501</b>	<b>67.4</b>	<b>33.9</b>	<b>33.5</b>	<b>32.6</b>
<b>Community*</b>					
Urban	8,733	63.5	33.7	29.9	36.5
Rural	1,768	86.4	35.0	51.5	13.6
<b>Region</b>					
Atlantic	814	75.4	32.8	42.6	24.6
Quebec	2,761	57.8	29.8	28.0	42.2
Ontario	3,879	68.4	35.3	33.1	31.6
Manitoba-Saskatchewan	728	75.3	32.8	42.5	24.7
Alberta	950	75.8	41.7	34.2	24.2
British Columbia	1,370	69.1	33.9	35.2	30.9
<b>Household composition</b>					
One-person	2,635	42.5	13.2	29.3	57.5
Couples	6,039	80.4	43.0	37.4	19.6
Lone parents	561	36.0	26.4	9.6	64.0
Other households	1,265	71.2	36.7	34.6	28.8
<b>Adjusted after-tax income quintiles</b>					
Lowest	2,101	39.7	9.2	30.5	60.3
Second	2,102	60.8	23.7	37.1	39.2
Middle	2,099	72.9	40.4	32.5	27.1
Fourth	2,099	78.3	46.5	31.8	21.7
Highest	2,100	85.4	49.7	35.7	14.7

Source: Survey of Household Spending, 2000

\* Urban areas include agglomerations of 10,000 and more; rural areas are under 10,000.

At every income level, single-adult households (lone-parent and one-person) had a significantly lower rate of ownership than ones with more than one adult (couples and other households). For example, the ownership rate of single-adult households was 28% in the lowest income quintile compared with 55% for couples and other households, and 66% compared with 90% in the highest quintile (data not shown).

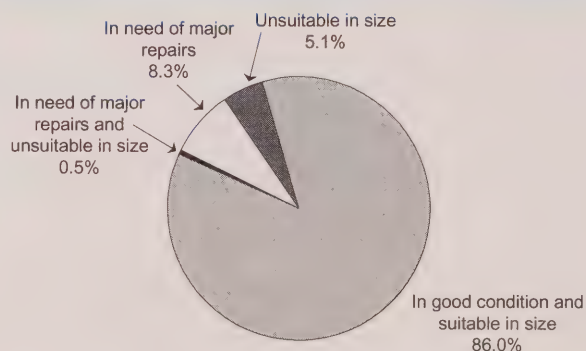
### One in seven homes needed major repairs or was unsuitable in size

In 2000, the vast majority (86%) of households lived in housing that did not need major repairs (in good condition) and had enough bedrooms to meet their needs (suitable in size) (Chart B). The remaining 14% lived below the condition or size norms—8.3% in dwellings needing major repairs, 5.1% in dwellings unsuitable in size, and 0.5% in dwellings that both needed major repairs and were unsuitable in size.

mortgage-free owners (43%). By contrast, at 58%, Quebec had the lowest rate of homeownership in the country.

Ownership was related to after-tax household income. Even when adjusted for household size,<sup>3</sup> income played an important role in determining the level of ownership. For example, only 40% of households in the lowest income quintile owned their homes, compared with 85% in the highest.

Household composition—more precisely, the presence of a second adult in the household—was also tied to ownership. Ownership rates for one-person households and lone parents (43% and 36% respectively) were significantly lower than rates for couples and other households (80% and 71% respectively).

**Chart B: Most households lived in housing that was in good condition and suitable in size.**

Source: Survey of Household Spending, 2000



Renters were more likely than owners to live in dwellings that did not meet the norms, especially in terms of size—11% of renters compared with 3% of owners (Table 2). Some 8% of owners with a mortgage lived in housing that needed major repairs.

Female lone parents and 'other households' had the highest rates of living in dwellings that did not meet the condition norm (10%), as well as the highest proportions living in dwellings unsuitable in size (15% and 14% respectively).

The proportion of couples without children living below the condition or size norms (10%) was only two-thirds that of couples with children (15%). In both groups, the majority of the dwellings were in need of major repairs. But couples with children were four times more likely than couples without children to live in housing unsuitable in size. One in eight (13%) rural households lived in dwellings that needed major repairs, compared with 8% of urban households.

The proportion of households living in dwellings below the condition or size norms was almost three times higher in the lowest income group (21%) than in the highest (8%). (These data cannot separate the households that have the choice or ability to modify their housing conditions from those that do not.)

### Condition and size problems often tied to affordability

Overall, households spent roughly one-fifth (21%) of their after-tax income on housing (Table 2). Those living below the housing condition or size norms also tended to have a higher median

**Table 2: Households below adequacy or suitability norms, and spending on housing.**

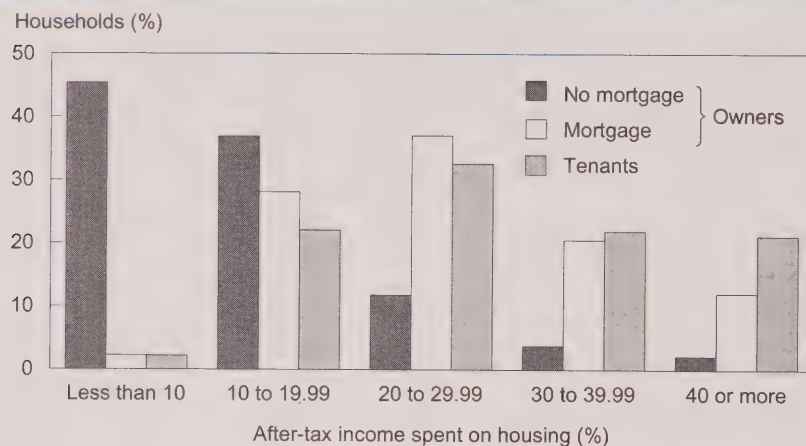
	Total number of households	In housing that was			Median housing expenditure ratio*
		In need of major repairs	Unsuitable in size	In need of repairs or unsuitable in size	
	'000			%	
<b>Total</b>	<b>10,501</b>	<b>8.9</b>	<b>5.6</b>	<b>14.0</b>	<b>21</b>
<b>Ownership</b>					
Owners	7,077	9.1	2.9	11.7	18
With mortgage	3,557	8.4	3.4	11.5	25
Without mortgage	3,520	9.8	2.3	11.9	11
Tenants	3,424	8.4	11.3	18.7	28
<b>Household composition</b>					
One-person households	2,635	7.9	4.4	12.0	28
Male	1,243	8.5	6.5	14.2	27
Female	1,392	7.4	2.6	10.0	29
Couples	6,039	8.9	3.6	12.1	18
With children under 18	2,587	9.7	6.4	15.3	21
Without children	3,453	8.3	1.5	9.8	16
Lone parents with children under 18	561	9.3	14.5	22.4	29
Male	92	F	F	F	22
Female	469	10.0	14.9	23.2	31
Other households	1,265	10.4	14.1	23.4	20
<b>Community</b>					
Urban	8,733	8.1	6.3	13.9	22
Rural	1,768	12.5	2.3	14.3	17
<b>Adjusted after-tax income quintile</b>					
Lowest	2,101	11.9	10.7	21.3	33
Second	2,102	9.3	6.1	14.9	24
Middle	2,099	9.6	4.7	13.7	21
Fourth	2,099	7.8	4.8	12.4	19
Highest	2,100	5.8	F	7.6	15

Source: Survey of Household Spending, 2000

\* Housing expenditures to after-tax income ratio. See Data source and definitions.

housing expenditure ratio. For example, renters spent 28% of their income on housing, and yet 19% of them lived in housing in need of major repairs or unsuitable in size. Similar results were found for female lone-parent families and households in the lowest income quintile. For these groups, roughly one in four households lived in below-standard housing, yet they spent approximately one-third of

their income on housing<sup>4</sup>—suggesting that they were not in a financial position to improve their situation. However, not all households with high housing cost ratios lived in housing below norms. For example, women living alone spent 29% of their after-tax income on housing, but only 10% of them lived in dwellings in need of major repairs or unsuitable in size.

**Chart C: Over one in five tenants spent 40% or more of their income on housing.**

Source: Survey of Household Spending, 2000

**The median ratio hides a wide distribution**

The distribution of households by their housing expenditure ratio differed greatly by ownership status. A full 82% of mortgage-free owners were in the lower ranges, spending less than 20% of after-tax income on housing (Chart C). For both tenants and owners with mortgages, the distribution of households peaked in the 20.0 to 29.9% range. However, the distribution of tenants was flatter than the distribution of owners with a mortgage. Indeed, just over one in five renters, compared with only one in eight owners with a mortgage, spent 40% or more of after-tax income on housing.

**Housing costs significant for lower-income households**

Tenants spent a greater proportion of their income on housing costs because the majority of them were in the two lowest income groups. Among tenants and owners with a mortgage in the same income group, owners spent a slightly higher proportion of their income on shelter.<sup>5</sup> In the lowest income quintile, tenants and owners with a mortgage spent almost 40% of their income on housing (Table 3). By contrast, owners without a mortgage spent 21%. The proportion of owners without a mortgage was almost constant

across income quintiles—approximately one third of each group (30% to 37%). On the other hand, the proportion of owners with a mortgage increased with income. Only 9% of households in the lowest income quintile were owners with a mortgage compared with 50% of households in the highest quintile.

The housing cost burden of households in the lowest income group was considerably reduced if the dwelling was mortgage-free. Housing costs do not seem manageable for households in the lowest income group unless they own their dwelling outright—but less than one-third did.

**Table 3: Median housing costs ratio and households by ownership status**

	Owners			Tenants
	Total	With mortgage	Without mortgage	
	%			
<b>Adjusted income quintile</b>	<b>Median housing expenditure ratio</b>			
Lowest	24	39	21	38
Second	20	30	14	29
Middle	19	28	11	23
Fourth	18	24	8	20
Highest	14	19	6	16
	<b>Ownership status</b>			
Lowest	39.7	9.2	30.5	60.3
Second	60.8	23.7	37.1	39.3
Middle	72.9	40.4	32.5	27.1
Fourth	78.3	46.5	31.8	21.7
Highest	85.4	49.7	35.7	14.7

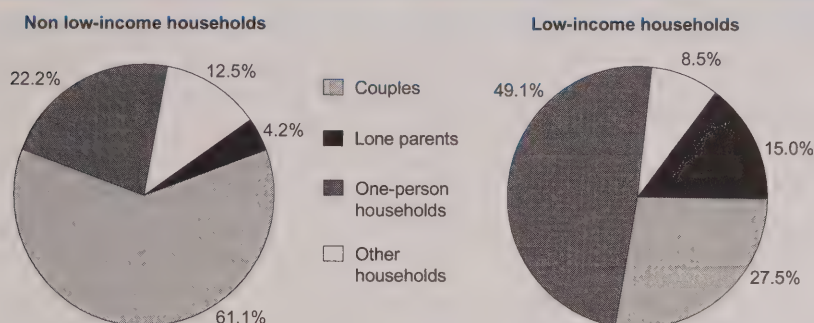
Source: Survey of Household Spending, 2000

**Factoring in choice**

Some households spend a high proportion of their income on housing because they prefer a larger house or are trying to pay off their mortgage as quickly as possible. On the



**Chart D: One-person households and lone parents were overrepresented in the low-income group.**



Source: Survey of Household Spending, 2000

other hand, some households simply may not have the capacity to reduce their housing expenditures. Their choices are limited by the availability of affordable housing suited to their needs. To better understand households deemed to have fewer housing choices, the final section of this article focuses on low-income households.

In 2000, 11% of households were in a low-income situation (see *Data source and definitions*). One-person households represented 49% of low-income households but only 22% of non low-income households (Chart D). The other overrepresented group was lone parents (15%). More precisely, lone mothers represented 14% of low-income households and only 3% of non low-income households. In fact, more than one-third of lone mothers were in the low-income group. Also, tenants made up almost three-quarters of low-income households, compared with just over one-quarter of non low-income households.

### Low-income households more likely to experience below-standard housing

Assuming that low-income households have fewer housing choices, one might expect to find this group more vulnerable to problems such as condition and size. Indeed, one in four low-income households lived in a dwelling needing major repairs or unsuitable in size, compared with approximately one in eight non-low income households (Chart E). Low-income households were three times more likely than non low-income families to live in housing with an insufficient number of bedrooms. They were also one-and-a-half times more likely to live in a dwelling in need of major repairs.

### Low-income renters spent almost half their income on housing

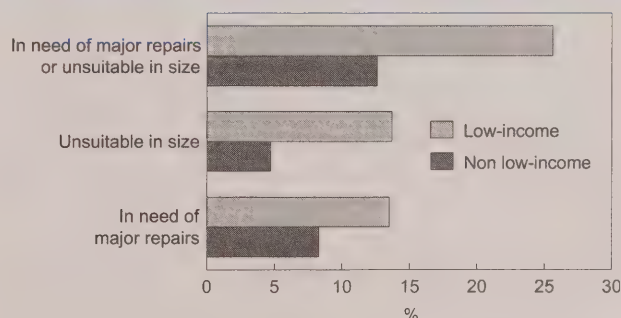
Furthermore, the median housing expenditure ratio of low-income households (39%) was twice as high as that of non low-income households (20%) (Table 4). Low-income tenants, who represented 70% of all low-income households, spent an even larger proportion of income on their dwelling (42%). Tenants living in non-subsidized housing spent 48% of their income on housing; those in government-subsidized housing spent significantly less (31%).

Mortgage-free owners represented 24% of low-income households and spent 28% of their after-tax income on housing, while owners with mortgages represented only 6% of low-income households and spent 44%.

### Summary

The majority of households (67%) owned the dwelling they lived in, but ownership rates varied by several household characteristics,

**Chart E: Low-income households were twice as likely to live in housing that needed repairs or was unsuitable in size.**



Source: Survey of Household Spending, 2000



**Table 4: Median housing expenditure ratio**

	All households		Non low-income		Low-income	
	Total	Ratio*	Total	Ratio*	Total	Ratio*
	'000	%	'000	%	'000	%
<b>Total</b>	<b>10,501</b>	<b>21</b>	<b>9,369</b>	<b>20</b>	<b>1,131</b>	<b>39</b>
Owners	7,077	18	6,735	17	341	30
With mortgage	3,557	25	3,492	25	65	44
Without mortgage	3,520	11	3,243	10	276	28
Tenants	3,424	28	2,634	25	790	42
Non-subsidized housing	2,984	27	2,427	24	557	48
Subsidized housing**	440	29	207	27	233	31

Source: Survey of Household Spending, 2000

\* Housing expenditure ratio (see Data source and definitions).

\*\* See note 2.

primarily income. Only 40% of households in the lowest income group were owners, compared with 85% in the highest.

Most households (86%) lived in housing that was in good condition and suitable in size, and spent roughly one-fifth of their after-tax income on shelter costs. The remaining 14% of dwellings had some condition or size problem, which was often tied to inadequate household income. Low-income households spent an average 39% of their income on housing, and yet one in four lived in a dwelling that needed major repairs or was unsuitable in size.

## Life cycle and housing

Assuming age to be a good indicator of life cycle, the following analysis of ownership, cost ratio, and age group of the household's major income recipient shows changes in housing through the different stages of life.

For households in which the major income recipient was aged 34 or less, the majority (56%) rented, and the housing expenditure ratio for both renters and owners was approximately 25%.

Between 35 to 44 years of age, households had the same housing expenditure ratio (25 to 27%), but 65% were owners and most had a mortgage.

Three-quarters of households with a major income recipient between 45 and 54 were owners, and the majority had a mortgage. At this stage, renters spent a higher proportion of their net income on housing than did owners with a mortgage. This difference may be partly because at this stage most households that could afford housing had already become homeowners, and a proportion of renters were lower income recipients. In fact, the median adjusted income of renters at this stage was \$20,000 compared with \$32,700 for owners.

Between 55 and 64, half of households (52%) were mortgage-free owners, thereby influencing the housing expenditure ratio of owners—only 14% versus 27% for renters.

For the 65 and over group, a smaller proportion of households were owners (70%) compared with the previous stage (80%), but 64% were mortgage-free. Older mortgage-free homeowners spent 15% of their net income on housing expenditures, compared with 34% for older renters.

In summary, ownership rates increased consistently with age until 65 when they fell off slightly. The proportion of mortgage-free owners also increased with age, and for those 55 and over, it represented the housing ownership of the majority of households. Despite ownership, the youngest group had the highest housing expenditure ratio (25%). Retired households (65 and over) living in mortgage-free, owner-occupied dwellings carried a considerably lower housing cost burden than tenants.

		Owners			Tenants
		Total	With mort- gage	Without mort- gage	
			%		
Age of major income recipient		Median housing expenditure ratio			
Under 35	25	24	26	9	25
35 to 44	24	22	25	8	27
45 to 54	19	16	23	7	25
55 to 64	16	14	26	10	27
65 and over	20	15	35	15	34
		Ownership status			
Under 35	100	44.4	39.7	4.8	55.6
35 to 44	100	64.7	50.0	14.7	35.3
45 to 54	100	75.3	42.7	32.6	24.8
55 to 64	100	79.9	27.8	52.1	20.1
65 and over	100	70.4	6.0	64.4	29.6

Source: Survey of Household Spending, 2000

Almost three out of four low-income households were tenants, and those with government subsidies had a significantly smaller housing cost burden. Owning a mortgage-free house had a positive effect on the housing cost ratio of low-income households and older households.

Generally, one-person households and lone-parent families were more likely to experience high housing cost ratios. Lone-parent families and 'other households' were more likely to experience housing condition or size problems stemming from their high proportion in the lowest income group.

Finally, over one in five renters spend 40% or more of after-tax income for housing expenditures—a significant figure since 70% of low-income households were renters.

### Perspectives

#### ■ Notes

1 A reverse mortgage, through the Canadian Home Income Plan, allows Canadian homeowners 62 and over to convert a portion of the equity of their home into an income stream while living in and owning their home. The amount that can be obtained is between 10% and 40% based on the assessed value of the home and the age of the owners. The older the owners, the larger the percentage that can be converted (see [www.chip.ca](http://www.chip.ca)).

2 Households reported themselves if they paid reduced rent that year because of government-subsidized housing from federal, provincial or municipal programs. The

estimated 440,000 households (4%) receiving housing assistance under any level of government probably significantly underestimates the real number of households that benefited from reduced rent in 2000. As reported in CMHC's *Canadian Housing Statistics* (2000), some 639,000 households received housing assistance under existing federal agreements.

3 Household income was adjusted by an adjustment factor accounting for household size, composition, and part-year members (see *Data source and definitions*).

4 In fact, female lone parents living in dwellings below the condition or size norm had a higher median housing expenditure ratio (36%) than those living in dwellings in good condition and suitable in size (31%).

5 But even within the same income quintile, owners with a mortgage had slightly higher median adjusted after-tax income than tenants, except for the highest quintile (data not shown).

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# Pensions: Immigrants and visible minorities

René Morissette

SEVERAL CANADIAN STUDIES have examined differences in earnings between immigrants and Canadian-born individuals (Grant 1999; Baker and Benjamin 1997; Bloom et al. 1995), as well as between members of visible minorities and other individuals (Hum and Simpson 1998). However, an examination of differences in pension coverage, an important component of employee compensation, has not been undertaken before.

Using the Labour Market Activity Survey (LMAS) and the Survey of Labour and Income Dynamics (SLID), this article examines the extent to which registered pension plan (RPP) coverage of immigrants and members of visible minorities differed from that of other Canadians between 1988 and 1998 (see *Data sources*). The focus is on employees aged 25 to 54.<sup>1</sup>

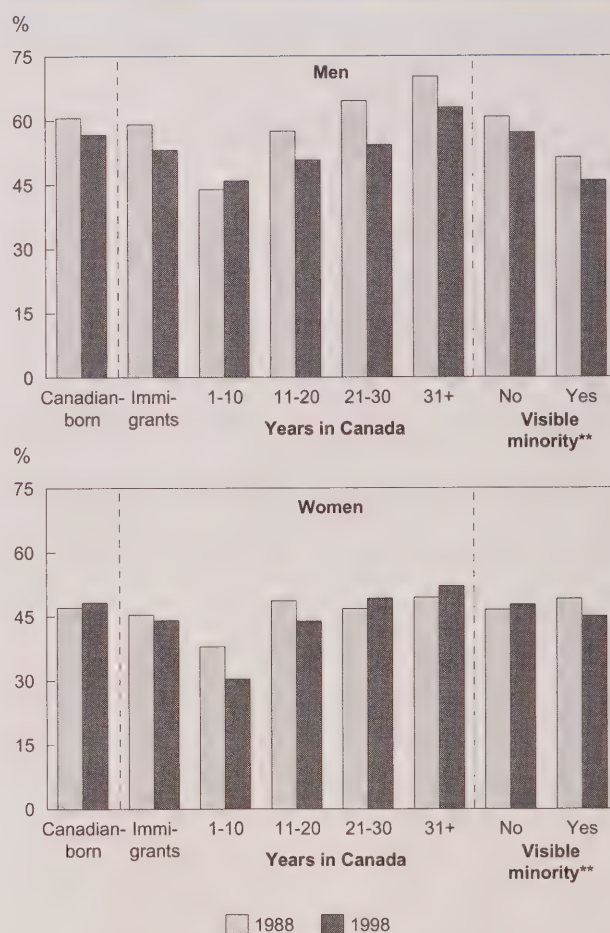
## RPP coverage of immigrants

In 1998, RPP coverage of immigrants was slightly lower than that of Canadian-born individuals. Of immigrant men, 53% had a pension plan in association with their job, compared with 57% of men born in Canada. The comparable percentages for women were 44% and 48% respectively.

Between 1988 and 1998, pension coverage among immigrant men fell from 59% to 53% (Chart A). Coverage also fell among men born in Canada. Most of the decrease was associated with the decline in unionization and employment shifts towards low-coverage industries (Morissette and Drolet 2000). In contrast, pension coverage changed very little among women, whether born in Canada or not.

The small changes in pension coverage among immigrant women mask offsetting trends between specific groups. Coverage fell substantially for recent immigrant women (those who arrived 1 to 10 years before

**Chart A: The decline in men's pension coverage\* was associated with declines in unionization and shifts to low-coverage industries.**



Sources: Labour Market Activity Survey; Survey of Labour and Income Dynamics

\* Main job in December.

\*\* The 1988 and 1998 numbers are not strictly comparable, because of differences in the way visible-minority status was established.

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## Data sources

The **Labour Market Activity Survey (LMAS)**, an annual survey from 1986 to 1990, collected information on labour market participation patterns and the characteristics of jobs held during the year. The survey identified up to five jobs held by each respondent and provided data on a variety of attributes for each job, including pension plan coverage. For this study, pension plan participation means having at least one job that provided pension plan coverage during the calendar year.

The **Survey of Labour and Income Dynamics (SLID)**, a longitudinal household survey, began in January 1993. Every three years, approximately 15,000 households enter the survey. Over a six-year period, each household completes two detailed questionnaires annually, one on labour market activity and another on income.

the survey), dropping from 38% to 30%. However, it rose slightly among women who immigrated more than 20 years ago. Among men, coverage did not fall for recent immigrants but fell substantially for those who had been in Canada more than 10 years.

### Does pension coverage increase with the number of years since migration?

Many of the studies mentioned previously have shown that earnings of immigrants increase with time spent in Canada. This could be the result of many factors, including their improved language skills and increased likelihood of developing networks to learn about labour market opportunities. Since well-paid jobs generally offer better pension coverage (Frenken and Maser 1992), one would expect a rise in the earnings of immigrants to be accompanied by an increase in pension coverage.

At first, the cross-sectional data appear to support this contention. For both men and women, pension coverage rises substantially with the number of years in Canada. In 1998, only 30% of women who had arrived in Canada during the previous 10 years had a pension plan, compared with 52% of those who had been in Canada for more than 30 years. Among men, the comparable percentages were 46% and 63%.

However, this positive association between pension coverage and years since migration in a single cross-section does not necessarily imply that RPP coverage of a given cohort of immigrants increases with the number of years spent in Canada. Instead, it could be

that cohorts of immigrants who arrived in Canada more than 30 years ago simply have better pension coverage than cohorts who arrived more recently. It could also be that as workers get older, they are employed in jobs with better coverage.<sup>2</sup> To assess whether pension coverage of a given cohort increases with the number of years since migration, it is necessary to control for age and examine the cohort's pension coverage over time.

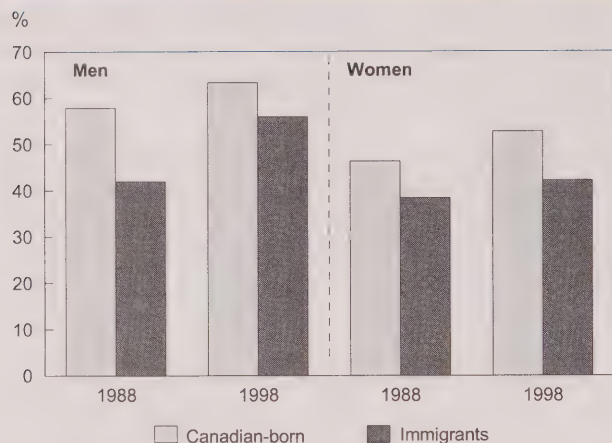
A simple way to do this is to compare RPP coverage of immigrants aged 25 to 54 in 1988 who arrived in Canada between 1979 and 1988 (1 to 10 years previously) with that of immigrants aged 25 to 54 in 1998 who arrived during the same time period (11 to 20 years previously). The results show that pension coverage of immigrant men in the 1979-1988 cohort rose from 44% in 1988 to 51% in 1998. This trend is particularly interesting since it occurred in a period when RPP coverage among Canadian-born men was falling. *A priori*, this suggests that coverage increased with the number of years since migration. A similar pattern was observed for immigrant women. Their RPP coverage rose from 38% to 44% between 1988 and 1998, even though coverage changed very little among Canadian-born women during this period.

However, a different pattern was observed for those who immigrated between 1969 and 1978. In this cohort, the pension coverage of men dropped from 58% in 1988 to 54% in 1998, while women's coverage remained unchanged at 49%.

How can the diverging patterns of the two cohorts be explained? One interpretation is that RPP coverage may increase after migration only to a certain level. The advantages associated with more time spent in Canada (developing networks to obtain better information about labour market opportunities, and so forth) could occur in the early years after arrival and then disappear.

Another possibility arises because the numbers presented for the two cohorts are based on fairly broad controls for age. Part of the increase in coverage for the 1979-1988 cohort could be because, on average, those in the 25 to 54 age group in 1998 were older than their counterparts in 1988.<sup>3</sup> Ideally, to control for this possibility, one would estimate for each cohort a logistic regression where the probability of being covered by an RPP would depend on age, and then calculate the resulting probability for a person with a given age. However, small sample sizes make the results of

**Chart B: Pension coverage\* of immigrant men tended to converge with that of the Canadian-born.**



Sources: Labour Market Activity Survey; Survey of Labour and Income Dynamics

\* Main job in December.

such an exercise unreliable. Therefore, using LMAS and SLID, it is unclear after controlling for age if pension coverage does in fact rise with the number of years since migration.<sup>4</sup>

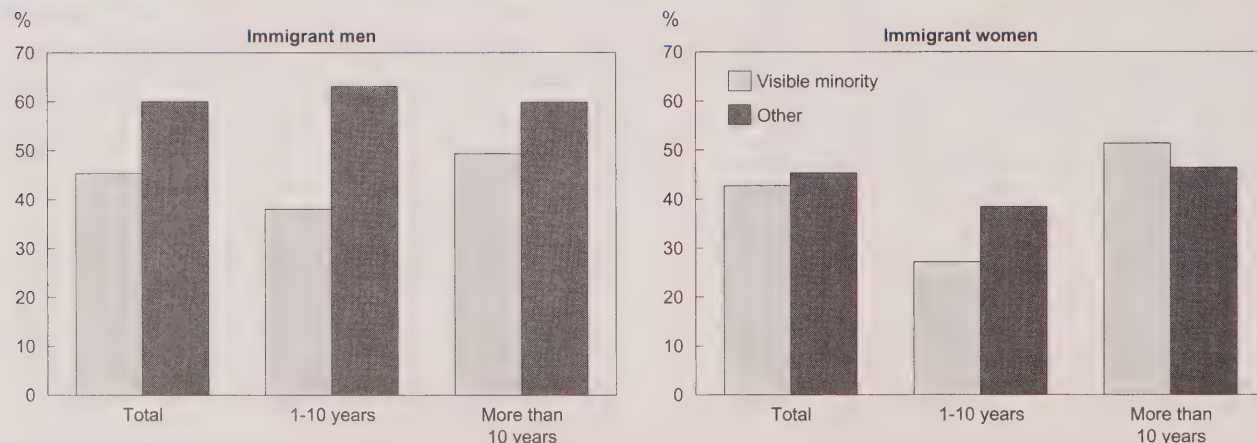
### Is there convergence in coverage?

Did RPP coverage rates of immigrants and Canadian-born workers tend to converge in the recent past? The answer is ambiguous. Among men, the evidence suggests a partial convergence, while among women, no evidence of convergence is apparent.

This can be seen by comparing men aged 25 to 44 in 1988 who immigrated between 1979 and 1988 with their Canadian-born counterparts (Chart B). The immigrant men saw their RPP coverage rise from 42% in 1988 to 56% in 1998 (when they were aged 35 to 54). In contrast, Canadian-born men experienced a more moderate increase, from 58% to 63%. As a result, the difference in coverage between the two groups decreased from 16 percentage points in 1988 to 7 percentage points in 1998, indicating some convergence.<sup>5</sup>

A different story emerges for women. Pension coverage of women aged 25 to 44 in 1988 who immigrated between 1979 and 1988 rose by only 4 percentage points between 1988 and 1998. However, the difference in coverage between these women and their Canadian-born counterparts did not decrease at all; instead, it rose from 8 percentage points in 1988 to 11 points in 1998.

**Chart C: Pension coverage\* of visible-minority immigrant men tended to be lower.**

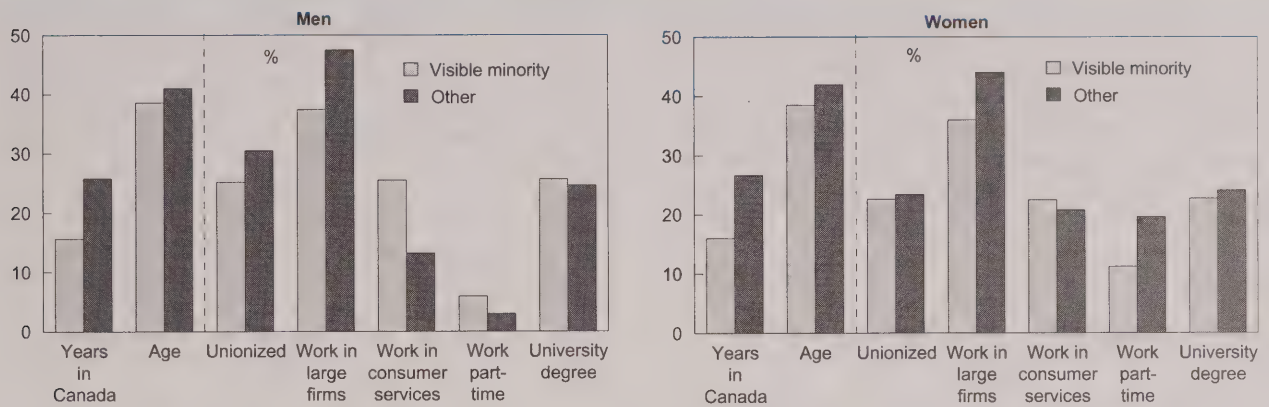


Source: Survey of Labour and Income Dynamics, 1998

\* Main job in December.



**Chart D: The characteristics\* of visible-minority immigrants aged 25 to 54 differed from those of other immigrants.**



Source: Survey of Labour and Income Dynamics, 1998

\* Main job in December.

## Visible minority status

While pension coverage of immigrant men was slightly lower than that of Canadian-born men, pension coverage of men who belonged to a visible minority (most of whom are immigrants) was only 46% in 1998, much lower than the rate observed for other male employees (57%).<sup>6</sup> In contrast, pension coverage of visible-minority women was 45%, fairly close to that of other women (48%).

Among immigrants, the degree of coverage varied substantially by visible-minority status. In 1998, visible-minority immigrant men had substantially lower coverage than other immigrant men—45% versus 60% (Chart C).<sup>7</sup> This is observed not only among recent immigrants but also among those who arrived earlier,<sup>8</sup> and suggests that the gap does not result simply because visible-minority immigrant men generally have lived in Canada for less time than other immigrant men.

The difference in coverage is much less pronounced among immigrant women.<sup>9</sup> Among recent immigrants, visible-minority women appear to have lower coverage than other women. However, the difference is not statistically significant at conventional levels. Further-

more, among immigrant women who arrived in Canada more than 10 years ago, coverage appears if anything to be higher for visible-minority women.

Why is RPP coverage so much lower among visible-minority immigrant men than among other immigrant men? There could be at least four explanations. First, compared with other immigrant men, visible-minority men have lived in Canada for a much shorter period of time: 15.6 years compared with 25.8 years (Chart D). Second, visible-minority immigrant men are found less often in unionized jobs, which offer better pension coverage than non-unionized jobs. Third, they are less likely to be employed in large firms, which provide better coverage than small firms (Morissette 1991). Fourth, they are much more often employed in low-coverage industries such as consumer services. When these four factors are controlled for in a multivariate analysis, the gap in coverage drops from 15 to 8 percentage points.<sup>10</sup> This result suggests that these four factors account for roughly half of the difference in pension coverage between visible-minority immigrant men and other immigrant men.

What accounts for the remaining difference? Differences in level of education are unlikely to be a factor since visible-minority immigrant men have, on



average, the same education level as other immigrant men.<sup>11</sup> Differences in employment by broad occupational groups do not appear to offer a plausible explanation either, since visible-minority immigrant men are found slightly less often in well-covered occupations such as professionals and managers.<sup>12</sup> Differences in field of study, language skills, or recognition of education credentials could play a role by influencing one's access to jobs with good fringe benefits. However, this cannot be examined, either because of sample size restrictions or because the information is not available in SLID.

## Summary

In 1998, pension coverage of immigrant employees was slightly lower than that of their Canadian-born counterparts. And recent immigrants had lower coverage than those who came to Canada earlier. Immigrant men belonging to a visible minority had much lower coverage than other immigrant men. However, a similar pattern was not observed among immigrant women. While pension coverage does seem to increase with time spent in Canada—presumably as a result of improved language skills and a better knowledge of labour market opportunities—a thorough investigation of this question requires large data sets that would allow analysts to control for factors such as country of origin, ethnicity, and class of immigrant.

## Perspectives

### ■ Notes

1 Workers under 25 were excluded, since potential changes in their coverage would probably have little effect on their retirement income, given the high probability of future job changes. Likewise, those over 54 were omitted because many may have taken early retirement and those still working may not be representative of the whole group. Statistical tests performed for this article take account of the complex design of the surveys.

2 The overrepresentation of older workers in large firms is consistent with this notion.

3 For immigrant men aged 25 to 54 in 1998, the average age was 38.9 years, compared with 34.0 years for their counterparts in 1988. Corresponding numbers for women were 38.4 and 33.6 respectively.

4 A more promising avenue would be to take advantage of the Longitudinal Immigration Database (IMDB) and use matching methods. This would mean comparing the pen-

sion coverage of two immigrants of *different* ages from the same country, with the same level of education and intended occupation upon arrival, belonging to the same class of immigrants, and arriving in Canada during the same year. For instance, pension coverage would be compared for two men who immigrated to Canada in 1988, one aged 35 in 1988 and the other aged 35 in 1998 (25 in 1988). Since pension coverage of Canadian-born men did not rise between 1988 and 1998, the possibility could be rejected that an increase in pension coverage observed between these two immigrants during the 1988-1998 period was due simply to a general increase in pension coverage among Canadian men. Since the IMDB database contains no data on the current education level of an immigrant, an assumption would have to be made that the education level of the second immigrant had not increased between 1988 and 1998 in order to conclude that an observed increase in pension coverage had been caused by a greater number of years since migration.

5 Using a one-tailed test, the hypothesis that the difference in coverage did not change between 1988 and 1998 can be rejected at the 10% level in favour of the hypothesis that it fell during the period.

6 The difference is statistically significant at the 1% level (two-tailed test).

7 The gap in coverage is statistically significant at the 1% level (two-tailed test).

8 For both recent immigrants and those who arrived earlier, the difference in coverage is statistically significant at the 5% level (two-tailed test).

9 It is not statistically significant at the 5% level.

10 A linear probability model was used in which workers' pension coverage was regressed simply on union status, industry (8 major groups), firm size (4 categories), and years since migration (1 to 10 years, 11 to 20 years, more than 20 years). The sample included 1,041 immigrant men, 402 of whom belonged to a visible minority.

11 Among visible-minority immigrant men, 13% did not graduate from high school, 14% had a high school diploma, 47% had some postsecondary education, and 26% had a university degree. The corresponding numbers for other immigrant men were 14%, 13%, 48%, and 25% respectively.

12 Among visible-minority immigrant men, 32% were professionals and managers, 26% white-collar workers, and 42% blue-collar workers. The corresponding percentages for other immigrant men were 36%, 23%, and 41% respectively.

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# Unionization and fringe benefits

Ernest B. Akyeampong

**W**AGES AND SALARIES, which make up the bulk of employee compensation packages, usually take centre stage in union bargaining negotiations. However, it appears that employers are increasingly using non-wage compensation packages to attract and retain workers. Among the most sought-after fringe benefits are insurance coverage (medical, dental, life/disability) and employer-sponsored pension plans.

Wages and salaries are largely determined by the interaction of supply and demand for labour, and by general economic conditions. In contrast, insurance and pension plan coverage are provided primarily at the discretion of the employer, often in response to demands from organized labour. This being so, one would expect coverage rates in these plans to be higher for unionized workers. Indeed, data from the first comprehensive Statistics Canada survey on the subject—the 1995 Survey of Work Arrangements—confirmed that unionized workers were approximately twice as likely to be covered in these plans as non-unionized workers.<sup>1</sup> But does this advantage still persist? This article explores this question

using the most recent data (1999) from the Survey of Labour and Income Dynamics (SLID) (see *Data sources and definitions*). Also examined are differences in coverage rates by sector (public and private) and establishment size, and the likely effect on the overall union advantage.<sup>2</sup> Some comparisons with the United States are also provided.

## Insurance coverage higher for unionized workers

In 1999, more than half of all employees stated that their main job was covered by an extended medical (57%), dental (53%), or life/disability (53%) insurance plan (Table 1). However, as in 1995, coverage rates in these plans differed considerably by union status. Workers in unionized jobs were almost twice as likely as their non-

unionized counterparts to be covered in each of the three plans—84% versus 45% for extended medical plans, 76% and 43% for dental plans, and 78% and 41% for life/disability insurance plans.

## Insurance coverage patterns polarized

For both unionized and non-unionized workers, coverage in insurance plans painted a polarized picture. The chances of an employee having a full package (all three plans) or no coverage (none of the plans) were very common. In other words, employers tended to provide either a full package plan or no plan at all. On the one hand, 69% of unionized and 37% of non-unionized workers enjoyed full coverage packages in 1999, while about 13% and 52% had no coverage

Table 1: Employer-sponsored benefit plans

	Employees		Medical plan		Dental plan		Life/disability Insurance	
	'000	%	'000	%	'000	%	'000	%
<b>All employees</b>	<b>13,170</b>		<b>7,562</b>	<b>57.4</b>	<b>6,998</b>	<b>53.1</b>	<b>6,914</b>	<b>52.5</b>
Unionized*	4,123		3,452	83.7	3,145	76.3	3,226	78.2
Non-unionized	9,048		4,111	45.4	3,853	42.6	3,688	40.8

Source: Survey of Labour and Income Dynamics, 1999

\* Includes a small number of persons who are not union members, but who are covered by collective agreements negotiated by unions (see Akyeampong 2000).

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## Data sources and definitions

Most of the data come from the **Survey of Labour and Income Dynamics (SLID)**, a longitudinal survey launched in 1993. The labour market information pertains to the population aged 16 to 69 on entering the survey. From a sample of 15,000 households representing 30,000 persons in 1993, the SLID panel since 1996 has doubled to cover 30,000 households and 60,000 persons.

SLID records the types of jobs held by individuals, their earnings, and their union status; and employer characteristics (such as sector or firm size). Starting in 1999, several questions on non-wage benefits such as insurance and pension coverage were added.

While SLID collects information on up to five jobs held within a year, the coverage rates pertain to the main paid job—the job with the most scheduled hours in the year. The self-employed are of course excluded.

The U.S. data on job-related fringe benefits come from the **National Compensation Survey**. This survey provides comprehensive measures on occupational earnings, compensation cost trends, and benefit incidence and detailed plan provisions. The U.S. union rate data come from their **Current Population Survey**.

An **employer-sponsored health insurance plan**, often referred to as an extended medicare plan, is additional to provincial medicare.

An **employer-sponsored pension plan** is additional to the Canada or Quebec Pension Plan, RRSPs, and group RRSPs. Similarly, in the U.S., such plans are additional to social security and 401(k) plans.

SLID respondents are asked only if these fringe benefits are offered by their employers. Details and extent (financial and otherwise) of each of the benefits are not sought.

(Chart A). The remaining 18% of unionized and 12% of non-unionized employees were covered by one or two plans.

### Gap in pension coverage much wider

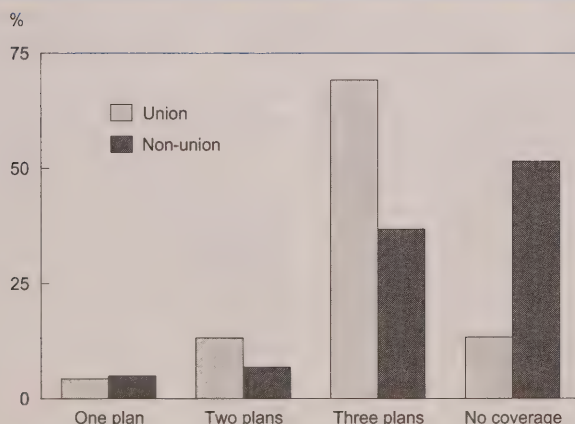
Compared with insurance coverage, overall coverage in employer-sponsored pension plans was low—about 43% in 1999. However, unionized workers had a much greater advantage. In 1999, almost 80% of

workers in unionized jobs had pension plan coverage, compared with only 27% in non-unionized positions (Table 2). The overall low rates for non-unionized workers are a result of low coverage in the private sector and in small firms (less than 100 employees).

### Coverage rates rise with firm size

Union density in Canada increases with firm size, partly due to economies of scale for unions. Economies of scale for employers suggest that the larger the firm, the higher the probability of having an employer-sponsored insurance or pension plan. Indeed, the SLID data confirm that coverage rates for both unionized and non-unionized workers rose in all plans

**Chart A: Most unionized workers had a full insurance package plan; most non-unionized workers had no coverage at all.**



Source: Survey of Labour and Income Dynamics, 1999

**Table 2: Employer-sponsored pension plans**

	Employees*		Coverage
	'000	'000	%
<b>All employees*</b>	<b>13,074</b>	<b>5,658</b>	<b>43.3</b>
Unionized**	4,085	3,265	79.9
Non-unionized	8,988	2,393	26.6

Source: Survey of Labour and Income Dynamics, 1999

\* Employee totals are slightly lower than in Table 1 due to a slightly lower response to the pension coverage question.

\*\* Includes a small number of persons who are not union members, but who are covered by collective agreements.

as firm size increased (Table 3). Also, in line with earlier findings, the data show that unionized workers enjoyed higher coverage rates than their non-unionized counterparts at each level of establishment size.

For unionized workers, coverage in each of the three insurance plans ranged from around 70% in the small establishments (less than 20 employees) to over 80% in large firms (100 or more employees). In contrast, for non-unionized workers, the range was considerably wider—from about 25% in the smallest firms to roughly 70% in the largest. Thus the coverage advantage for unionized workers tended to decrease as the firm size increased. In other words, the overall coverage advantage enjoyed by

all unionized workers in the three insurance plans originated mainly from small- and medium-sized firms (less than 100 employees).

The pattern of coverage by establishment size was not much different for employer-sponsored pension plans. Pension coverage rates for unionized workers ranged from 70% in firms with less than 20 employees to 85% in firms with 100 or more. For their non-unionized counterparts, the rate ranged from a very low 13% to only 54%. Again, the very low coverage rates for non-unionized workers in small- and medium-sized establishments played a significant role in accentuating the overall union advantage in pension plan coverage.

### Coverage higher in public sector

The public and private sectors differ in many ways. The former has relatively larger establishments and is highly unionized (Statistics Canada 2002). Also, public establishments are generally not driven by profit maximization, making it relatively easier for them to lead the way in providing fringe benefits.

SLID data show that coverage rates in pension plans and all three insurance plans were higher for both unionized and non-unionized workers in the public sector (Table 4). However, among unionized workers, coverage rates in insurance plans were fairly close between the two sectors. Indeed, in the case of medical and dental plans, the gaps were only 3 to 4 percentage points (for example, 86% of public-sector unionized employees had extended medical coverage compared with 82% of their counterparts in the private sector). Therefore, for persons in unionized jobs, the chances of having coverage in either of these two insurance plans were almost equal—irrespective of sector. In the case of pension plans, however, the coverage gap between public and private sector unionized employees was much wider (89% versus 72%).

In contrast, for non-unionized workers, the chances of having coverage were much higher in the public sector. In the public sector, 47% of non-unionized employees had pension coverage in 1999, compared with only 25% in the private sector.

**Table 3: Employer-sponsored benefit plans by firm size**

	Less than 20 employees		20-99 employees		100 or more employees	
	Em- ployees	Cover- age	Em- ployees	Cover- age	Em- ployees	Cover- age
	'000	%	'000	%	'000	%
<b>Medical plan</b>						
Unionized	543	75.6	1,310	81.2	2,187	87.7
Non-unionized	3,957	27.8	2,751	51.5	2,116	73.0
<b>Dental plan</b>						
Unionized	543	69.7	1,310	73.1	2,187	80.5
Non-unionized	3,957	25.7	2,751	47.4	2,116	69.9
<b>L/D insurance plan</b>						
Unionized	543	68.1	1,310	75.0	2,187	83.4
Non-unionized	3,957	23.5	2,751	45.9	2,116	68.6
<b>Pension plan</b>						
Unionized	541	70.3	1,295	75.8	2,170	85.4
Non-unionized	3,942	12.7	2,732	26.5	2,097	54.3

Source: Survey of Labour and Income Dynamics, 1999

Note: Employment in this table is slightly lower than in Table 1 due to a slightly lower response to the firm size question.



Thus, for both insurance and pension plans, while the higher rates of unionized workers in the public sector contributed very little to the overall advantage unionized workers enjoy, the very low rates of non-unionized workers in the private sector appear to have played an important role.

### Comparisons with the United States

Canada-U.S. comparisons of insurance and pension coverage should be made with caution, partly because of differences in social policies and programs (notably in medical, welfare, and employment insurance), tax practices (for example, tax policies on retirement income savings), and union density, which is much higher in Canada (30% versus 14% in 1999). In spite of these caveats, data from SLID and the U.S. National Compensation Survey (see *Data sources and definitions*) do provide some insights on coverage rates in each country's

**Table 4: Employer-sponsored benefit plans by sector**

	Employees	Medical plan	Dental plan	Life/disability insurance	Pension plan
	'000	%	%	%	%
<b>All employees</b>					
Public	2,682	76.2	69.9	73.6	77.4
Private	10,488	52.6	48.9	47.1	34.5
<b>Unionized employees</b>					
Public	1,916	85.7	78.0	82.9	89.4
Private	2,207	82.0	74.8	74.2	71.7
<b>Non-unionized employees</b>					
Public	766	52.3	49.5	50.4	47.4
Private	8,282	44.8	41.9	39.9	24.7

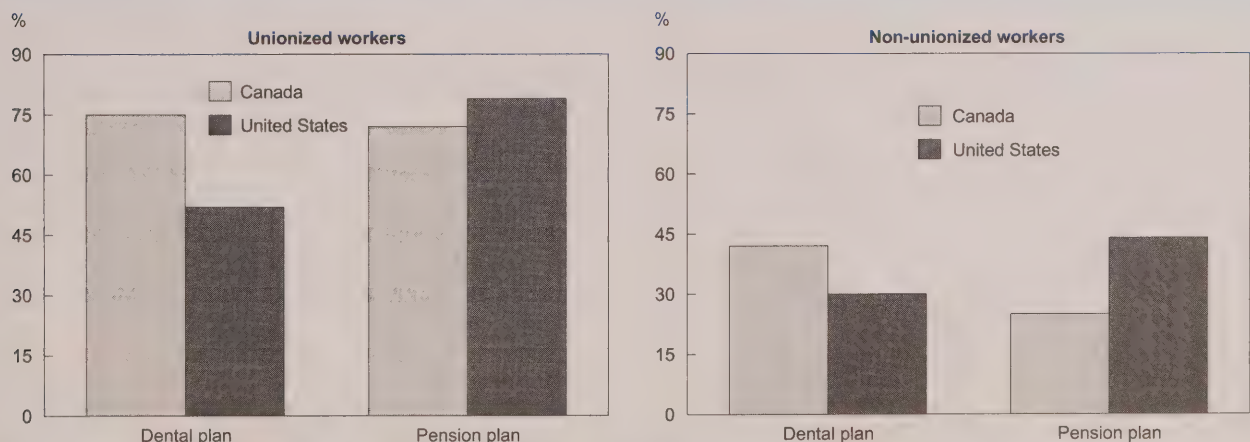
Source: Survey of Labour and Income Dynamics, 1999

private sector (the U.S. survey was confined to the private sector) for the year 1999.

Comparisons of medical plan coverage are omitted from this study because of the great differences in medicare policies between the two countries.<sup>3</sup> Similarly, comparisons of life/disability coverage rates are impossible because in the U.S. the two are listed separately, while in Canada they are combined.

In 1999, coverage rates for dental insurance and pension plans were higher in both countries for unionized workers than for non-unionized. Dental coverage for unionized workers was 75% in Canada and 52% in the U.S.; the comparable rates for non-unionized employees were 42% and 30% (Chart B). Although Canadian workers had the edge in dental coverage rates, U.S. workers had higher coverage

**Chart B: In 1999, private-sector employee coverage in dental plans was higher in Canada than in the United States; the reverse was true for pension plans.**



Sources: Survey of Labour and Income Dynamics; U.S. National Compensation Survey



in employer-sponsored pension plans—79% versus 72% for unionized workers, and 44% versus 25% for non-unionized.

## Summary

In 1999, slightly more than half of all employees in Canada enjoyed employer-sponsored medical, dental, or life/disability insurance coverage. The coverage rate for pensions was slightly lower (about 43%). Coverage rates in the three insurance plans for unionized employees were approximately double those for non-unionized (about 80% versus 40%). The union advantage in pension plan coverage was much larger (80% versus 27%). The 1999 rates and differentials were generally unchanged from 1995. A majority of unionized employees enjoyed coverage under all three insurance plans; a majority of non-unionized workers had no coverage under any plan.

For unionized workers, the chances of being covered were almost the same in both the public and private sectors. For the non-unionized, the chances were much higher in the public sector. The overall union advantage resulted primarily from low coverage in small- and medium-sized firms (less than 100 employees) in the private sector.

In both Canada and the U.S., unionized workers enjoyed higher coverage rates for these non-wage fringe benefits than their non-unionized counterparts. However, the union advantage tended to be less in the U.S.

## ■ Notes

1 See Statistics Canada 1998, 68-71. The union advantage on hourly earnings was much narrower (37%) according to the 1995 SWA.

2 Several other, often interactive factors affect coverage. These include industry and occupation of employment, job permanency, full- or part-time status, job tenure, and legislation. These are not considered in this brief article, but will form part of a forthcoming general study.

3 Coverage by employer-sponsored medical insurance plans in the U.S. was 73% for unionized workers and 51% for their non-unionized counterparts. In Canada, in addition to the universal coverage provided by provincial medicare, almost 82% of unionized workers were covered by employer-sponsored extended medical plans, as were 45% of their non-unionized counterparts.

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# Better jobs in the new economy?

Marie Drolet and René Morissette

**T**ECHNOLOGICAL CHANGE has always had a substantial influence on the workplace, altering production processes and affecting the way jobs are done. The accelerated pace of change at the end of the twentieth century spurred interest in firms and workers directly involved in generating new technologies and products. Employees in these knowledge-based workplaces are generally seen as working long hours, under pressure to generate a new product in a very competitive environment. It is generally assumed that they are well paid, not only through direct wages, but also through stock options or other forms of remuneration.

This article explores these notions using the 1999 Workplace and Employee Survey. It compares jobs in knowledge-based industries with those in other sectors of the economy. The focus is on industries that conduct a higher-than-average level of research and development, and in which professionals such as scientists and engineers make up a substantial proportion of the workforce. These industries tend to be *producers* of knowledge-based technologies in information, communications and technology industries, and other science-based sectors such as pharmaceuticals (see *Data source and definitions*).

Knowledge-based firms employed about 7% of workers in 1999—3% of them in information and communication technology (ICT) industries (Table 1). Conversely, 1% were employed in ICT workplaces not belonging to knowledge-based industries.

In this article, industries are classified into five mutually exclusive groups: knowledge-based in the goods sector, knowledge-based in the service sector, other goods-producing, retail trade and consumer services, and professional and other services.<sup>4</sup>

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Do knowledge-based firms pay higher wages, offer better fringe benefits, or have more family-friendly practices than other workplaces? If so, do they require longer workweeks from their workers? How do job satisfaction and pay satisfaction compare with other workplaces? Are workers more likely or less likely to be unionized than those in other workplaces? Do knowledge-based workplaces tend more to adopt what is often viewed as high performance work practices (teamwork, job rotation, and formal grievance systems)?

## Work schedules

In 1999, employees in knowledge-based workplaces worked an average of 43.4 hours per week—at least 4.0 hours more than workers in professional and other services, or in retail trade and consumer services (Table 2), but less than employees in other goods-producing industries (44.6).

**Table 1: Employment and workplaces by industry, 1999**

	Employment	Workplaces
	%	
<b>Knowledge-based</b>	<b>7.4</b>	<b>4.6</b>
ICT	2.8	2.0
All other	4.6	2.6
Goods-producing	4.0	1.3
Service-producing	3.4	3.3
<b>Other</b>	<b>92.6</b>	<b>95.4</b>
ICT	1.1	0.9
All other	91.5	94.5
Goods-producing	20.2	16.6
Consumer services and retail trade	21.4	28.2
Professional and other services	51.0	50.6

Source: Workplace and Employee Survey



## Data source and definitions

The **Workplace and Employee Survey (WES)** is a linked file consisting of both employer and employee components. Employers are sampled by physical location—the statistical unit that corresponds most closely to the concept of a workplace in which employer and employee activities can be linked. Employees are then sampled within each location from employer-provided lists.

The initial wave of WES was conducted during the summer and fall of 1999. Usable information was collected from 6,351 business locations and 24,597 employees, representing response rates of 94% and 83% respectively. This article used responses from 23,296 employees aged 18 to 64 in the private sector.

The survey covers a broad range of topics such as technology adoption, innovation, human resource practices, labour turnover and business strategies, among others.

**Knowledge-based industries** spend a relatively large amount of resources on research and development and a substantial proportion of their workforce is made up of

professionals, such as scientists and engineers (Lee and Has 1996).<sup>1</sup> The definition is restricted to industries that *produce* knowledge-based technologies, products and services. Industries that *use* such technologies are not classified as knowledge-based.<sup>2</sup>

The issue of classification requires three additional clarifications. First, knowledge-based industries are found in both the goods sector and the service sector. Second, they include most but not all industries in the information and communication technology (ICT) sector—for instance, telecommunications, data processing, computer systems design and related services, as well as the manufacture of computer and peripheral equipment, communications equipment, and semiconductor and other electronic components. Excluded are wholesaler-distributors of office and store machinery and equipment. Third, knowledge-based industries include many non-ICT industries, such as in pharmaceutical and chemical manufacturing (see Appendices A and B for detailed lists of knowledge-based and ICT industries).<sup>3</sup>

Since knowledge-based firms employ relatively few part-time workers (usual weekly hours less than 30), these numbers could overstate the differences in work-hours among full-time workers.<sup>5</sup>

This is indeed the case. With an average workweek of 44.0 hours, full-time workers in knowledge-based firms worked at least 1.1 hours more than those in professional and other services (42.9) or in retail trade and consumer services (41.8) (Table 2)—but once again, less than full-time employees in other goods-producing industries (45.2).

Differences in workhours varied by education level. University graduates employed full time in knowledge-based workplaces worked fully two hours more than those in professional and other services, or in retail trade and consumer services. However, full-time employees with some postsecondary education or less did not work longer hours, on average, than their counterparts in other industries.

University graduates employed full time in knowledge-based workplaces worked fairly long hours (46.6), but their average workweek was very similar to that of their counterparts in other goods-producing industries (46.7). Interestingly, those employed in goods-producing, knowledge-based workplaces worked two hours more of unpaid overtime (5.7) than those in other goods-producing industries (3.7). Thus, compared with their counterparts in the rest of the economy, university graduates in knowledge-based workplaces worked either longer hours or more hours of unpaid overtime.

**Table 2: Work hours by industry and education, 1999**

	Knowledge-based			Other			
	Total	Goods	Services	Total	Goods	Consumer	Professional
<b>All employees</b>	<b>43.4</b>	<b>43.6</b>	<b>43.2</b>	<b>39.7</b>	<b>44.6</b>	<b>35.7</b>	<b>39.4</b>
High school or less	42.1	43.0	40.4	39.6	44.3	34.9	40.0
Some postsecondary	41.9	42.4	41.3	38.9	44.6	35.2	38.2
University degree	46.4	46.9	46.1	41.8	46.3	40.5	41.3
<b>Full-time employees</b>	<b>44.0</b>	<b>43.9</b>	<b>44.1</b>	<b>43.3</b>	<b>45.2</b>	<b>41.8</b>	<b>42.9</b>
High school or less	42.8	43.4	41.8	43.3	44.9	41.7	43.0
Some postsecondary	42.7	42.7	42.6	42.7	45.2	41.3	42.1
University degree	46.6	46.9	46.4	44.7	46.7	44.4	44.3
<b>Unpaid overtime</b>							
University degree*	5.3	5.7	5.0	4.7	3.7	2.2	5.3

Source: Workplace and Employee Survey

\* Full-time employees.



## Hourly earnings

Employees in knowledge-based workplaces averaged \$24.09 per hour in 1999, 32% more than those in other industries (\$18.19) (Table 3). The wage gap between knowledge-based industries and other industries was smaller for university graduates (14%) than for workers with some postsecondary education (31%).

Several reasons can be advanced why workers in knowledge-based industries earn relatively high wages. First, they are generally better educated; roughly 40% of workers in knowledge-based services had a university degree compared with 25% in professional and other services, and 11% in retail trade and consumer services.<sup>6</sup> Second, they tend to be employed in larger workplaces, which generally offer higher wages (Brown, Hamilton and Medoff 1990; Morissette 1993). Third, they may receive higher wages to defer the relatively high costs of living in larger areas, where knowledge-based workplaces tend to be located. Fourth, many are in high-paying professional occupations such as engineering and science. Finally, some—especially university graduates—could be receiving higher wages as compensation for their relatively long workhours.

After these five factors are controlled for, the wage gap between workers in knowledge-based workplaces and other workers drops to 8%.<sup>7</sup> What could account for the remaining difference? Perhaps work effort is greater in knowledge-based workplaces. Or perhaps workers have more responsibility and perform a more diversified set of tasks.<sup>8</sup> A third possibility is that knowledge-based workplaces have more market

**Table 3: Hourly earnings by industry and education, 1999**

	Knowledge-based			Other			
	Total	Goods	Services	Total	Goods	Consumer	Professional
	\$						
<b>All employees</b>	<b>24.09</b>	<b>23.40</b>	<b>24.88</b>	<b>18.19</b>	<b>19.64</b>	<b>12.61</b>	<b>19.96</b>
High school or less	18.96	18.23	20.26	15.09	17.11	11.11	16.71
Some post-secondary	22.54	22.43	22.70	17.18	19.96	12.68	17.93
University degree	29.22	29.96	28.73	25.73	26.92	17.67	26.95
<b>Full-time employees</b>	<b>24.24</b>	<b>23.48</b>	<b>25.14</b>	<b>18.66</b>	<b>19.68</b>	<b>13.41</b>	<b>20.10</b>
High school or less	18.97	18.21	20.38	15.57	17.07	11.37	16.93
Some post-secondary	22.70	22.53	22.96	17.67	20.02	13.70	18.03
University degree	29.31	29.97	28.86	25.77	27.05	18.08	26.84

Source: Workplace and Employee Survey

power than other workplaces and share part of their profits with their workers. It is therefore unclear whether the remaining wage difference reflects a wage premium or compensation for greater work effort or more responsibilities.

## Fringe benefits

Employees in knowledge-based industries are not necessarily better covered by registered pension plans than other workers. Just 40% of employees in service-producing, knowledge-based workplaces had a pension plan, compared with 48% of their counterparts in professional and other services (Table 4). This does not necessarily imply that employees in knowledge-based firms have less generous compensation packages. Employees in service-producing, knowledge-based firms were five times more likely to receive stock options (31%) than employees in professional and other services (6%).<sup>9</sup> They were also more likely to have group registered retirement savings plans.<sup>10</sup>

Fringe benefit packages contain more than just retirement plans. On average, employees in the knowledge-based sector were more likely than other workers to be covered by life/disability insurance, supplemental medical insurance, and dental plans.

## Personal and family support programs

Media reports have suggested that high-tech workplaces offer fitness facilities to help employees cope with relatively long workhours. Indeed, roughly 25% of employees in knowledge-based workplaces had fitness and recreation services provided (on- or off-site). The corresponding numbers for other goods-producing industries, professional and other services, and retail trade and consumer services were 15%, 17% and 5% respectively. Knowledge-based firms also offered employee assistance programs (counselling, substance abuse control, financial assistance, legal aid) more often than those in other goods-producing industries, and retail trade and

**Table 4: Workers receiving fringe benefits, 1999**

	Knowledge-based			Other			
	Total	Goods	Services	Total	Goods	Con-sumer	Profes-sional
	%						
Registered pension plan	51.1	60.5	40.3	40.4	46.0	16.8	48.2
Group RRSP	31.8	34.8	28.3	17.4	23.1	10.2	18.1
Stock purchase plan	23.5	16.6	31.4	6.8	10.1	6.4	5.7
Life/disability insurance	78.8	84.3	72.5	57.2	67.8	34.3	62.6
Supplemental medical	74.2	78.1	69.8	53.6	64.3	32.3	58.3
Dental plan	76.7	82.1	70.6	52.3	62.5	32.3	56.5

Source: Workplace and Employee Survey

consumer services. However, similar to other industries, knowledge-based workplaces offered child care services (on- or off-site) rather infrequently (7%).

### Overqualification

It is reasonable to assume that the quality of a match between a job and the employee is higher when the educational requirements of the job match the worker's education level. If so, workers in service-producing knowledge-based workplaces appeared to enjoy good matches more often than workers in other industries. Almost half (45%) were in jobs in which their education level equalled the minimum requirements. This proportion was higher than in professional and other services (36%), retail trade and consumer services (21%), and other goods-producing industries (27%). In contrast, workers in goods-producing, knowledge-based workplaces reported being undereducated more often than other workers.<sup>11</sup>

Workers in retail trade and consumer services were more likely to report that their job had no

minimum educational requirement. If it did, they reported being overqualified much more often. This is not surprising given the relatively low skill levels associated with jobs in this sector.

### Flexible work practices

Flexible work practices such as teamwork and job rotation are generally assumed to affect the way workers experience their work through a variety of psycho-social variables (Godard 2001). If work-

ers are allowed to perform a diversified set of tasks, morale may be increased through a greater sense of control. While teamwork is pleasant for workers who like more varied work, it may require greater effort from others, such as low-ability workers who must satisfy the norm regarding productivity.<sup>12</sup> Similarly, job rotation may be stressful for individuals who do not adapt easily to new tasks.

To what extent are employees in knowledge-based workplaces frequently involved in teamwork and job rotation? Workers in knowledge-based workplaces with more than 10 employees, like their counterparts in other industries, participated only rarely (6% to 7%)<sup>13</sup> in job rotation programs (Table 7). However, they appeared to be involved in self-directed workgroups—the most intense form of teamwork—more often (52%) than workers in other industries (41%). This greater incidence of teamwork in knowledge-based workplaces is consistent with the notion that teams may be more valuable in technologically complex environments (Boning, Ichniowski and Shaw 2001).<sup>14</sup>

**Table 5: Workers whose employer offered personal and family support programs, 1999**

	Knowledge-based			Other			
	Total	Goods	Services	Total	Goods	Con-sumer	Profes-sional
	%						
Any family/personal support program	45.2	46.4	43.8	30.6	31.3	11.2	38.5
Employee assistance programs	40.2	43.1	37.0	27.2	28.5	7.9	34.8
Fitness	25.9	26.2	25.5	13.6	14.5	4.7	17.0
Childcare	7.2	7.5	6.8	6.1	3.8	1.3	9.0

Source: Workplace and Employee Survey



**Table 6: Education and job match, 1999**

	Knowledge-based			Other			
	Total	Goods	Services	Total	Goods	Consumer	Professional
	%						
No educational requirements in job	5.8	6.9	4.4	16.3	19.5	28.0	10.1
Over-educated	32.2	33.6	30.5	37.6	36.7	42.4	35.9
Under-educated	21.9	23.3	20.3	15.3	16.6	8.5	17.7
Education-job match	40.2	36.2	44.7	30.9	27.2	21.2	36.4

Source: Workplace and Employee Survey

## Performance appraisal

At least 65% of employees in knowledge-based workplaces had their job performance evaluated through a standard process, compared with only 45% to 58% in other industries (Table 8).<sup>15</sup> Accordingly, employees in knowledge-based workplaces were almost twice as likely as other workers to find their pay or benefits directly affected by job evaluation results. While performance appraisal may represent a challenge or opportunity for some workers, it may be stressful for others.

## Union status

Employees in knowledge-based workplaces were less likely to be unionized (20%) than those in professional and other services or in other goods-producing industries (33%). However, substantial differences existed within the knowledge-based sector. Goods-producing workplaces were almost twice as likely to be unionized (25%) as service-producing ones (14%). The unionization rate in service-producing, knowledge-based industries was very similar to that in retail trade and consumer services.

**Table 7: Workers participating frequently/always in flexible work practices,\* 1999**

	Knowledge-based			Other			
	Total	Goods	Services	Total	Goods	Consumer	Professional
	%						
Employee suggestion programs	31.1	34.2	26.9	29.1	26.2	24.5	32.0
Job rotation/cross-training	6.7	7.4	5.8	6.2	8.6	6.6	5.1
Task teams	16.1	19.6	11.3	15.4	16.4	14.9	15.1
Quality circles	28.0	29.2	26.4	23.1	26.3	21.0	22.6
Self-directed workgroups	52.4	53.5	50.7	41.2	41.9	33.4	43.8

Source: Workplace and Employee Survey

\* Workplaces with more than 10 employees.

**Table 8: Performance appraisal, 1999**

	Knowledge-based			Other			
	Total	Goods	Services	Total	Goods	Consumer	Professional
	%						
By standard process	68.3	70.8	65.4	52.9	48.5	45.1	57.9
Influences pay or benefits	49.8	51.5	47.8	25.7	26.1	21.7	27.2

Source: Workplace and Employee Survey

Despite their relatively low unionization rate, workers in service-producing, knowledge-based workplaces reported the presence of a dispute, complaint or grievance system fairly frequently—42% compared with 61% in goods-producing, knowledge-based workplaces. However, the system may have been informal, with only management as the final authority to settle disputes. A more meaningful question would be whether service-producing, knowledge-based workplaces are less likely to



**Table 9: Union status and formal grievance systems, 1999**

	Knowledge-based			Other			
	Total	Goods	Services	Total	Goods	Con-sumer	Profes-sional
	%						
Covered by a collective agreement	20.0	25.4	13.8	28.8	33.4	13.4	33.4
Dispute system at work	52.2	60.7	42.4	48.9	49.4	35.6	54.3
Formal grievance system at work and final decision with labour management committee/outside arbitrator*	32.7	45.9	17.5	33.4	37.6	13.4	40.7

Source: Workplace and Employee Survey

\* Employee-weighted workplace response.

have a formal grievance system, where the final authority to settle disputes is held by either a labour-management committee or an outside arbitrator.

The answer is yes. Like their counterparts in retail trade and consumer services, less than 20% of employees in service-producing, knowledge-based workplaces had a formal grievance system. This proportion is much smaller than in goods-producing, knowledge-based workplaces (46%), professional and other services (41%), and other goods-producing industries (38%).

### Job satisfaction

Workers in knowledge-based industries were very satisfied with their job more often than workers in other industries (41% and 34% respectively). However, those in service-producing, knowledge-based workplaces were not necessarily more satisfied with their pay. In contrast, 27% of workers in goods-producing, knowledge-based workplaces reported being very satisfied with their pay (simi-

lar to other goods-producing industries), compared with only 16% of workers in retail trade and consumer services.<sup>16</sup> These differences in job satisfaction and satisfaction with pay must be interpreted with caution since they likely capture differences across individuals in intrinsic satisfaction levels as well as differences in job quality (Hamermesh 2001).

**Table 10: Job satisfaction, 1999**

	Knowledge-based			Other			
	Total	Goods	Services	Total	Goods	Con-sumer	Profes-sional
	%						
<b>Satisfaction with job</b>							
Very satisfied	40.9	42.5	39.1	34.3	34.9	33.0	34.7
Satisfied	51.9	50.6	53.5	54.6	56.0	55.5	53.7
Dissatisfied/no opinion	7.2	6.9	7.4	11.1	9.1	11.5	11.6
<b>Satisfaction with pay</b>							
Very satisfied	23.6	26.7	19.9	18.7	23.9	16.3	17.7
Satisfied	58.1	55.9	60.6	54.7	54.6	57.6	53.6
Dissatisfied/no opinion	18.3	17.4	19.5	26.6	21.5	26.1	28.7

Source: Workplace and Employee Survey

### Wage trends in the CT sector

It is well known that employment fell in the computer and telecommunications (CT) sector in 2001 (Bowlby and Langlois 2002).<sup>17</sup> Since ICT industries are an important component of knowledge-based industries and since roughly 88% of ICT employees work in the CT sector, it is worth investigating how wages in the CT sector evolved relative to the rest of the economy during the 1997-2002 period. Did workers who kept their jobs in the CT sector see their wages fall relative to other workers?

The answer is no. Hourly wages in the CT sector did not fall relative to the rest of the economy. In March 1997, workers in the CT sector received 22% higher wages than workers in other industries (Table 11). In March 2002, the proportion was 33%. A similar pattern was observed for workers with at least some postsecondary education. Thus, the raw data suggest, if anything, an improvement in the relative wages of CT workers.

**Table 11: Hourly wages in the CT sector and other industries\***

	CT sector	Non CT sector	CT advantage
	1999 \$		%
<b>All workers</b>			
1997	19.57	15.99	22.4
1998	19.81	15.96	24.1
1999	20.96	16.13	29.9
2000	20.83	16.12	29.2
2001	22.12	16.23	36.3
2002	21.95	16.53	32.8
<b>Workers with high school or less</b>			
1997	17.09	13.42	27.4
1998	16.31	13.35	22.2
1999	18.32	13.40	36.7
2000	16.44	13.61	20.8
2001	17.38	13.52	28.6
2002	17.34	13.51	28.3
<b>Workers with some post- secondary education</b>			
1997	18.58	15.67	18.6
1998	18.54	15.70	18.1
1999	19.49	15.88	22.7
2000	19.66	15.73	25.0
2001	20.63	15.84	30.2
2002	20.45	16.24	26.0
<b>Workers with a university degree</b>			
1997	23.38	21.97	6.4
1998	23.91	21.79	9.7
1999	24.50	22.06	11.1
2000	24.55	21.92	12.0
2001	26.07	21.94	18.9
2002	26.15	22.59	15.8

Source: Labour Force Survey

\* Main job held in March by paid workers aged 18 to 64.

This apparent improvement may be misleading if CT establishments laid off mainly employees with relatively low levels of seniority during 2001.<sup>18</sup> If so, two patterns would be observed. First, relative wages in the CT sector would have improved mainly because the remaining employees in CT industries would have seniority with their company. Second, relative wages in the CT sector would not change as much after controlling for differences in workers' seniority.

This is indeed the case. After controlling for seniority and occupation (among other factors), relative wages in the CT sector did *not* increase. Workers in the CT sector received 4% higher wages than those in other industries, both in March 1997 and in March 2002.<sup>19</sup> Hence, both the raw data and the data adjusted for

seniority indicate that the decline in employment of the CT sector in 2001 was not associated with a decline in relative wages for employees who retained their jobs in this sector.

## Summary

Are jobs in knowledge-based firms better jobs? The answer is "It depends." On the one hand, workers in these firms received high wages, had good fringe benefits, profited from fitness and recreation services as well as employee assistance programs and were often in jobs whose requirements matched their education level. On the other hand, some of them worked fairly long hours, and those in service-producing, knowledge-based workplaces were less likely to have a formal grievance system.

What is clear is that jobs in knowledge-based firms have several desirable characteristics. However, several other dimensions have not been analyzed—for instance, work intensity, the need to adapt to technological change, and level of stress. These factors could also explain why earnings were higher in service-producing, knowledge-based firms, and why workers in such workplaces were not more satisfied with their pay than workers in other goods-producing industries.

## Perspectives

### ■ Notes

1 Lee and Has (1996) divide industries on the basis of three R&D measures: the R&D-to-sales ratios, the proportion of R&D personnel to total employment, and the proportion of professional R&D personnel to total employment; and three measures of human capital: the ratio of workers with postsecondary education to total employment, the ratio of knowledge workers (occupations in the natural sciences, engineering and mathematics, education, management and administration, social sciences, law and jurisprudence, medicine and health, and writing) to total employment, and the ratio of the number of employed scientists and engineers to total employment (Baldwin and Johnson 1999, 21). Knowledge-based industries are those that fall in the top third on the basis of two of the R&D measures *and* two of the human-capital indices.

2 Other definitions, which include workplaces that *use* knowledge-based technologies, would lead to greater estimates of the size of the knowledge-based economy.

3 A recent *Perspectives* article (Bowlby and Langlois 2002) showed that the ICT sector grew much faster than the whole economy from 1997 to 2000. As a result, the sector accounted



for 7% of Canada's GDP in 2000, up from 4% in 1996. However, the output of the ICT sector plummeted in 2001 because of a sharp decline in the manufacturing component of ICT.

4 Professional and other services comprise transportation, warehousing and wholesale trade; information and cultural industries; finance and insurance; real estate, rental and leasing operations; professional services such as legal, accounting, advertising and design; administration and waste management; educational services; health care and social assistance; and other services.

5 The proportion of part-time employees equals 1% and 4% for knowledge-based workplaces operating in the goods and service sector respectively, compared with 15% in professional and other services, 27% in retail trade and consumer services, and 2% in other goods-producing industries.

6 The same is true in the goods sector. The proportion of workers with a university degree in goods-producing, knowledge-based workplaces is about double that in other goods-producing industries (24% and 11% respectively).

7 This number comes from a regression of the natural logarithm of hourly wages on the following set of explanatory variables: a constant, full-time labour market experience and its squared term, seniority and its squared term, education (3 categories), occupation (47 categories), sex, region (6 categories), long work hours (4 categories), workplace size (4 categories), union status, an indicator for knowledge-based workplaces and interaction terms between this indicator and the education variable. Only the interaction term between postsecondary education and the knowledge-based indicator is statistically significant at the 5% level (two-tailed test). It suggests that the wage gap between knowledge-based workplaces and other workplaces is 12% for workers with some postsecondary education, that is, 4 percentage points higher than for people with other education levels.

8 Work effort may be greater in knowledge-based workplaces since employees in these workplaces are more likely to receive performance-based pay, a compensation scheme that may be associated with greater work effort. As well, workers in knowledge-based workplaces are more likely to participate in self-directed workgroups, a factor that is associated with higher wages after worker characteristics are controlled for.

9 Employees in service-producing, knowledge-based workplaces had lower pension coverage than their counterparts in goods-producing, knowledge-based workplaces, but were much more likely to have employee stock options.

10 Furthermore, 15% of knowledge-based workplaces had profit-sharing plans, compared with only 7% of workplaces in other industries.

11 Workers in the goods-producing, knowledge-based sector may be more likely to report being undereducated as concerns the complexity of the product, reading technical specifications, and interacting with professional team members.

12 It may also be difficult for introverted individuals to adapt to personal dynamics, which may have an impact on their productivity within the team environment.

13 Since job rotation is likely to be occasional, it is worth examining what percentage of workers participate at least occasionally (occasionally, frequently or always. When this is done, participation in job rotation programs equals 27% in other goods-producing industries, 22% in consumer services and retail trade, 18% in professional and other services, 24% in goods-producing, knowledge-based industries and 20% in service-producing, knowledge-based industries. Using this measure, participation in job rotation programs is not necessarily more frequent in knowledge-based industries than in other industries.

14 Caution must be exercised in interpreting these numbers since Leckie et al. (2001, 51) showed that most workers who reported being in teams or in job rotation were in workplaces *not* having teams or job rotation programs. For instance, only 21% of workplaces in knowledge-based industries reported having self-directed workgroups compared with 10% in other industries. One interpretation is that workers may report working in teams when the level of interaction in their job is higher than what they perceive to be normal, regardless of whether the job is associated with *formally* established programs. In contrast, employers may report having teams only if they have formally established team-work.

15 Standard process means a written report, private meeting with the supervisor, or a standard report.

16 The question asked is: "Considering the duties and responsibilities of this job, how satisfied are you with the pay and benefits you receive? Would you say that you are: very satisfied, satisfied, dissatisfied, or very dissatisfied?"

17 The CT sector comprises 12 NAICS industries: commercial and service industry machinery (3333), computer and peripheral equipment (3341), communications equipment (3342), audio and video equipment (3343), semiconductor and other electronic components (3344), navigational, measuring, medical and control instruments (3345), computer and communications equipment and supplies wholesaler-distributors (4173), software publishers (5112), telecommunications (5133), data processing (5142), computer systems design and related services (5415), electronic and precision equipment repair and maintenance (8112).



18 The increase in average seniority in the CT sector from 73 to 87 months between March 2001 and March 2002 supports this contention.

19 The natural logarithm of hourly wages was regressed on the following set of explanatory variables: a constant, age and its squared term, seniority and its squared term, education (6 categories), occupation (47 categories), gender, part-time status, union status, province, and an indicator for the CT sector.

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## Appendix A: Knowledge-based industries

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- 221111 Hydro-electric power generation
- 221112 Fossil-fuel electric power generation
- 221113 Nuclear electric power generation
- 221119 Other electric power generation
- 221121 Electric bulk power transmission and control
- 221122 Electric power distribution
  
- 324110 Petroleum refineries
- 324121 Asphalt paving mixture and block manufacturing
- 324190 Other petroleum and coal products manufacturing
- 325110 Petrochemical manufacturing
- 325120 Industrial gas manufacturing
- 325130 Synthetic dye and pigment manufacturing
- 325181 Alkali and chlorine manufacturing
- 325189 All other basic inorganic chemical manufacturing
- 325190 Other basic organic chemical manufacturing
- 325210 Resin and synthetic rubber manufacturing
- 325313 Chemical fertilizer (except potash) manufacturing
- 325314 Mixed fertilizer manufacturing
- 325320 Pesticide and other agricultural chemical manufacturing
- 325410 Pharmaceutical and medicine manufacturing
- 325520 Adhesive manufacturing
- 325910 Printing ink manufacturing
- 325920 Explosives manufacturing
- 325991 Custom compounding of purchased resins
- 325999 All other miscellaneous chemical product manufacturing
  
- 332991 Ball and roller bearing manufacturing
- 333110 Agricultural implement manufacturing
- 333120 Construction machinery manufacturing
- 333130 Mining and oil and gas field machinery manufacturing
- 333210 Sawmill and woodworking machinery manufacturing
- 333220 Rubber and plastics industry machinery manufacturing
- 333291 Paper industry machinery manufacturing
- 333299 All other industrial machinery manufacturing
- 333310 Commercial and service industry machinery manufacturing
- 333413 Industrial and commercial fan and blower and air purification equipment manufacturing
- 333416 Heating equipment and commercial refrigeration equipment manufacturing
- 333611 Turbine and turbine generator set unit manufacturing
- 333619 Other engine and power transmission equipment manufacturing
- 333910 Pump and compressor manufacturing
- 333920 Material handling equipment manufacturing
- 333990 All other general-purpose machinery manufacturing
- 334110 Computer and peripheral equipment manufacturing
- 334210 Telephone apparatus manufacturing
- 334220 Radio and television broadcasting and wireless communications equipment manufacturing
- 334290 Other communications equipment manufacturing
- 334310 Audio and video equipment manufacturing
- 334410 Semiconductor and other electronic component manufacturing
- 334511 Navigational and guidance instruments manufacturing
  
- 334512 Measuring, medical and controlling devices manufacturing
- 335311 Power, distribution and specialty transformers manufacturing
- 335312 Motor and generator manufacturing
- 335315 Switchgear and switchboard, and relay and industrial control apparatus manufacturing
- 335920 Communication and energy wire and cable manufacturing
- 335990 All other electrical equipment and component manufacturing
- 336410 Aerospace product and parts manufacturing
  
- 486110 Pipeline transportation of crude oil
- 486210 Pipeline transportation of natural gas
- 486910 Pipeline transportation of refined petroleum products
- 486990 All other pipeline transportation



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## Appendix A: Knowledge-based industries (concluded)

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511210 Software publishers  
 512110 Motion picture and video production  
 513220 Cable and other program distribution  
 513310 Wired telecommunications carriers  
 513320 Wireless telecommunications carriers (except satellite)  
 513330 Telecommunications resellers  
 513340 Satellite telecommunications  
 513390 Other telecommunications  
 514210 Data processing services  
  
 532420 Office machinery and equipment rental and leasing  
  
 541310 Architectural services  
 541320 Landscape architectural services  
 541330 Engineering services  
 541340 Drafting services  
 541360 Geophysical surveying and mapping services  
 541370 Surveying and mapping (except geophysical) services  
 541380 Testing laboratories  
 541510 Computer systems design and related services  
 541620 Environmental consulting services  
 541690 Other scientific and technical consulting services  
 541710 Research and development in the physical, engineering and life sciences

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## Appendix B: ICT industries

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### Manufacturing

33331 Commercial and service industry machinery  
 33411 Computer and peripheral equipment  
 33421 Telephone apparatus  
 33422 Radio and television broadcasting and wireless communications equipment  
 33431 Audio and video equipment  
 33441 Semiconductor and other electronic components  
 33451 Navigational, measuring, medical, and control instrumentation  
 33592 Communication and energy wire and cable

### Services

51121 Software publishers  
 51322 Cable and other program distribution  
 5133 Telecommunication services  
 51419 Other information services  
 51421 Data processing services  
 54151 Computer systems design and related services  
 81121 Electronic and precision equipment repair and maintenance  
 41731 Computer, computer peripheral and prepackaged software wholesaling  
 41732 Electronic components, navigational and communications equipment and supplies wholesaling  
 41791 Office and store machinery and equipment wholesaling  
 53242 Office machinery and equipment rental and leasing

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# In the works

*Some of the topics in upcoming issues*

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## ■ Older workers facing retirement

Retirement—how does it happen? The question may seem trite, but the reality is that not everyone leaves a career job voluntarily, nor do they necessarily drop out of the labour market. Longitudinal data for persons aged 50 to 67 shed new light on older workers in the labour market.

## ■ Union wage premium

Do unionized workers earn more in all cases? Does the advantage differ by industry or size of firm?

## ■ Wealth and income: not synonymous

The correlation between income and wealth is less than perfect. Some individuals with a high income have very little wealth; some with a low income have substantial wealth. Age obviously has an effect, but are other factors involved?

## ■ Cumulative earnings

The cumulative flow of income contributes to individual wealth. How has the decline in real earnings of young men affected their wealth accumulation?

## ■ Booming retirement

The baby boomers are beginning their assault on the shores of retirement. Two studies look at the industries and occupations most likely to be affected by the exodus.

PERSPECTIVES ON LABOUR AND INCOME

The quarterly for labour market and income information

# What's new?

## *Recent reports and studies*

### ■ JUST RELEASED

#### ■ *2001 Census: Age and sex*

The second round of data from the 2001 Census, covering age and sex, is now available on Statistics Canada's Web site ([www.statcan.ca](http://www.statcan.ca)). From the home page, choose *Census*. Information in the module is organized into four broad categories: analysis, data, maps and reference material.

Detailed analysis is presented in a full-colour online report, *A profile of the Canadian population by age and sex: Canada ages*. This HTML document comprises numerous tables, charts and maps.

The report provides information on Canada's aging population and analyzes changes in various age groups nationally and by province and territory, with historical perspectives. It also examines trends in large metropolitan areas, cities and towns. Links to various products and services are provided.

Two vignettes are featured on the Web site. The first contains a timeline that shows major events witnessed by centenarians in Canada over the past 100 years. The second contains animated age pyramids of the population of Canada from the 1901 to 2001 censuses.

Age and sex data are also available in the *Community profiles* module for Canada and the provinces and territories, as well as for 27 metropolitan areas and nearly 6,000 cities, towns, villages and Indian reserves.

For more information, contact Media Relations, Communications Division, at (613) 951-4636.

#### ■ *Individual income*

Median total income of individuals rose in 2000 for the third straight year, and reliance on government transfer payments declined for the seventh consecutive year.

The median total income of individuals was \$21,600, up 1.1% from 1999 after adjusting for inflation.

Median total income for individuals has been increasing since 1997, when it was \$20,464 after adjusting for inflation. The median in 2000, however, was still well below the adjusted \$23,235 in 1990.

Median employment income—wages and salaries and proceeds from self-employment—increased a marginal 0.8% to \$23,200 from \$23,005 in 1999, after adjusting for inflation. This was the result of an increase in wages and salaries, combined with virtually no change in the level of earnings from self-employment. Median employment income has been increasing for the past three years.

The economic dependency ratio—the amount of government transfer payments received for every \$100 of employment income—has been declining since 1993. In 2000, taxfilers received \$15.64 for every \$100 of employment income, down from \$16.62 in 1999 and far less than the peak of \$26.92 in 1993.

Taxfilers in Calgary relied least on transfer payments, receiving only \$7.61 for every \$100 in employment income. Those in Trois-Rivières received the most (\$22.74).

The Northwest Territories had the highest median total income for individuals (\$27,800), followed by Yukon (\$26,000). Ontario taxfilers received \$24,000 and those in Alberta \$22,700. These four were the only provinces and territories reporting median total income above the national level. Taxfilers in Newfoundland and Labrador had the largest percentage increase (2.5%) in median total income in 2000, but they still reported the lowest level (\$15,900).

Median employment income advanced in most census metropolitan areas. Taxfilers in Oshawa had the highest, at \$30,300; those in Trois-Rivières reported the lowest, at \$20,500.



The data for *Neighbourhood income and demographics* (13C0015, various prices), *Labour income profiles* (71C0018, various prices) and *Economic dependency profiles* (13C0017, various prices) are available for letter carrier routes, census tracts, urban forward sortation areas (the first three characters of the postal code), cities, towns, federal electoral districts, census divisions, economic regions, census metropolitan areas, provinces, territories and Canada.

For more information, or to enquire about concepts, methods or data quality, contact Client Services, Small Area and Administrative Data Division, at 1 866 652-8443 or (613) 951-9720; fax: 1 866 652-8444 or (613) 951-4745; [saadinfo@statcan.ca](mailto:saadinfo@statcan.ca).

### ■ *Family income*

Median family income rose in 2000 for the fourth straight year to reach \$51,000, an increase of 2.2% from 1999 (after adjusting for inflation). However, this was still slightly less than a decade earlier when the figure stood at \$51,900. Except for a slight decline in the Northwest Territories, median income rose in all provinces and territories.

The median income of lone-parent families increased 5.7%, more than twice the growth rate of 2.0% for husband-wife families. For husband-wife families, median total income reached \$56,700, up from \$55,600 in 1999. The median for lone-parent families rose to \$25,400, up from \$24,000 and slightly higher than the level of \$25,200 a decade ago.

Regionally, Ottawa-Hull surpassed Oshawa and Windsor as the census metropolitan area with the highest median family income, likely in part because of activity in the high-tech sector at the time. Median family income in Ottawa-Hull was \$65,500, compared with \$64,700 in Oshawa and \$64,200 in Windsor. Ottawa-Hull also recorded the largest increase (6.3%).

The number and percentage of dual-earner families continued to increase in 2000. The median employment income of husband-wife families in which both spouses or partners earned income rose 1.4% to \$62,500.

Employment income remained the main source of income, accounting for 75% of total income. Government transfers, which include income from the Child Tax Benefit program, Canada and Quebec

Pension Plans, and Old Age Security Supplements, represented 12%. Private pension plans represented 6%, and investment income 5%.

Employment income represented 79% of the total income of husband-wife families, and 68% of that of lone-parent families. Government transfers represented 22% of the total income of lone-parent families, but only 9% of that of husband-wife families.

The median income for senior husband-wife families (those in which at least one spouse was 65 or over) rose to \$39,400, up 0.9% from 1999. The income profile of senior husband-wife families differed markedly from that of husband-wife families as a whole. Senior husband-wife families derived a much lower percentage of their income from employment (22%). An additional 16% came from Old Age Security Supplements, and the Canada and Quebec Pension Plans represented 15%. Private pensions accounted for 25%, and investment income 13%.

Family income (*Family data*, 13C0016, various prices) and seniors' income (*Seniors*, 89C0022, various prices) are available for letter carrier routes, census tracts, urban forward sortation areas (the first three characters of the postal code), cities, towns, federal electoral districts, census divisions, census metropolitan areas, economic regions, provinces, territories and Canada.

For more information, or to enquire about concepts, methods or data quality, contact Client Services, Small Area and Administrative Division, at 1 866 652-8443 or (613) 951-9720; fax: 1 866 652-8444 or (613) 951-4745; [saadinfo@statcan.ca](mailto:saadinfo@statcan.ca).

### ■ *Farm income*

Average total income of farm operators rose 8.9% in 2000 to reach \$43,558, the largest percentage gain since 1995, according to personal income tax data. This growth was the result of a rise in both average net farm operating income (before depreciation) (13.7%) and average off-farm income (5.4%). The upturn in net farm operating income, which followed three straight annual declines, was responsible for most of the improvement. Average net farm operating income totalled \$19,103, or almost 44% of total income, gaining 2 percentage points from 1999. Off-farm income rose to \$24,455 in 2000. Off-farm employment income, which grew 6.5%, was the major factor in the increase.

For a second consecutive year, operators running hog farms posted the largest percentage gain (90.4%) in total income. This was wholly the result of net farm operating income, which more than tripled as hog prices continued to rebound from dismal prices in late 1998. Increased marketing of slaughter hogs also helped to push up average net farm operating income. The average total income of operators running hog farms was \$59,900, well above that of all farm operators.

Income of operators specializing in fruit and vegetable production dropped 4.7% to \$40,739. This decline stemmed from a 13.4% drop in average net farm operating income.

Operators of medium-sized farms posted the largest percentage gain in total income, up 9.6% to \$32,613 in 2000. However, they, as well as operators of small farms (\$31,497), remained far below the national average.

However, operators of large and very large farms, who rely mainly on income from farming activities, were above the average. Operators of very large farms earned \$113,698, up 7.5% from 1999. They earned \$77,988 in average net farm operating income, representing 68.6% of their average total income. Operators of large farms earned \$46,004 in average total income, up 4.0% from 1999.

Off-farm income is composed of employment income, investment income, pension income, and other income (government social transfers, registered retirement savings plan income of farm operators aged 65 or older, and other income such as alimony or maintenance income and Net Income Stabilization Account payouts). Provincial family allowances are not included.

These estimates refer to the income of farm operators involved in one or more unincorporated or incorporated farms. They encompass unincorporated farms with gross operating revenues of \$10,000 or more in 2000, and incorporated farms with total agricultural sales of \$25,000 or more in 2000.

For custom data requests, contact Client Services, Agriculture Division, at 1 800 465-1991 or [agriculture@statcan.ca](mailto:agriculture@statcan.ca). For more information, or to enquire about concepts, methods or data quality, contact Lina Di Pi  tro, at (613) 951-3171; fax: (613) 951-3868;

[lina.dipietro@statcan.ca](mailto:lina.dipietro@statcan.ca), or Sylvana Beaulieu at (613) 951-5268; [sylvana.beaulieu@statcan.ca](mailto:sylvana.beaulieu@statcan.ca), Agriculture Division.

## ■ *Job creation and loss*

*Employment dynamics* is a compilation of statistical tables on annual employment, payrolls and businesses with employees, for Canada, the provinces and territories. The tables show the number of jobs created by new or growing businesses and the number of jobs lost because of businesses closing or reducing their overall employment levels.

The tables also provide annual estimates of business entry and exit (for businesses with employees only).

The CD-ROM *Employment dynamics*, 1983 to 1999 (61F0020XCB, \$500) is now available.

For more information, or to enquire about concepts, methods or data quality, contact Daisy Locke, Small Business and Special Surveys Division, at (613) 951-0583 or [daisy.locke@statcan.ca](mailto:daisy.locke@statcan.ca).

## ■ *Shift work and health*

Three in 10 employed Canadians worked some type of shift in 2000-2001. Many shift workers reported problems that ranged from sleep disruption to difficulties with relationships. For most of them, working shift was not a choice, but a requirement of employment.

For both sexes, an evening shift in 1994-1995 was associated with increases in psychological distress over the following two years, according to a new profile of shift workers in the latest issue of *Health Reports*.

Men who worked an evening, rotating or irregular shift in 1994-1995 had increased odds of being diagnosed with a chronic condition over a four-year period. For women, a non-standard schedule was not associated with a new diagnosis of chronic conditions during that period.

In 2000-2001, 30% of men and 26% of women aged 18 to 54 who were employed throughout the year had non-standard schedules. About one-quarter of shift workers reported evening or night shifts. Rotating and irregular shifts were reported more frequently, each accounting for about 4 in 10 of these workers.



Whether they had an evening, rotating or irregular shift, the majority of shift workers had no choice. However, men were more likely than women to say that it was a requirement of the job: 65% of men and 53% of women working an evening shift reported that they had to. In contrast, 11% of women, but just 3% of men working an evening shift did so because they were caring for family.

Shift work was more common in blue-collar or sales and service occupations than in white-collar or clerical jobs. People working less than 30 hours a week were more likely to have non-standard schedules, as were those who worked on weekends.

The likelihood of working shift decreased with advancing age, possibly because older workers with seniority have more choice in their hours than do younger, less experienced workers.

Single or previously married workers were more likely than those who were married to have non-standard schedules.

Men living in households with children were less likely than those in childless households to work shifts. There was no difference for women.

The article "Shift work and health" is now available in *Health Reports*, Vol. 13, no 4 (82-003-XIE, \$15/\$44). A paper version (82-003-XPE, \$20/\$58) will be available soon. For more information, or to enquire about concepts, methods or data quality, contact Margot Shields, Health Statistics Division, at (613) 951-4177 or [margot.shields@statcan.ca](mailto:margot.shields@statcan.ca).

For more information about *Health Reports*, contact Marie P. Beaudet, Health Statistics Division, at (613) 951-7025 or [beaumar@statcan.ca](mailto:beaumar@statcan.ca).

## ■ *Pension plans*

Membership and plan provisions of employer plans (registered pension plans) as of January 1, 2001 are now available from the Pension Plans in Canada database. The Pension Plans in Canada Survey is a census of all registered pension plans. Statistics are derived largely from administrative data provided to the 10 pension supervisory authorities.

For more information, or to order key statistical tables or custom tabulations, contact Client Services, Income Statistics Division, at 1 888 297-7355 or (613) 951-7355; fax: (613) 951-3012; [income@statcan.ca](mailto:income@statcan.ca).

## ■ *Male-female pay differences*

Where people work—including the type of workplace and industry—has a significant bearing on the persistent wage gap between the sexes, according to a study using the Workplace and Employee Survey (WES). The study is the first to address the role of specific workplace characteristics, such as high performance workplace systems, foreign ownership, and workplace part-time rate in explaining wage differences between men and women.

In 1999, women were paid an average of 80 cents for every dollar earned by men—women earned \$17.14 per hour while men received \$21.54.

Many possible reasons can be advanced for this pay gap, including differences in individual work experience, in what people do (for example, occupation and job tasks), and in where they work (for example, specific workplace characteristics).

While WES allows examination of a number of conventional explanations such as education and experience, it also allows a thorough examination of the role played by the workplace.

Some 44% of the wage gap was attributable to factors usually considered in previous studies. A further 18% of the gap was associated with workplace characteristics, captured for the first time in WES. The remaining 38% of the wage gap could not be explained.

Among factors usually considered in previous studies, differences in worker characteristics—particularly experience and occupation—accounted for 24% of the wage gap, while the other 20% was a result of the clustering of women in low-wage industries.

Among workplace characteristics, the part-time rate accounted for 11%, while teamwork, foreign ownership, and pay-for-performance accounted for an additional 7%.

The distribution of men and women across industries remains a major factor underlying the pay differential. This study demonstrates that the contribution of industry in explaining the wage gap is higher than what is usually found using information collected in household surveys.

According to the study, roughly 20% of the wage gap is attributable to women's being clustered in low-wage industries. Other studies, using data from household surveys, found about 15% of the wage gap attributable



to differences in the distribution of men and women across industries. The difference may partly reflect the more accurate measure of industry in WES data.

Other factors, such as work experience and occupation, play a role in explaining the pay gap. In 1999, men averaged 18 years of full-time work experience compared with 14 for women. Since wages increase with work experience, this difference in the time spent working full time accounts for 10% of the hourly wage gap between men and women. In addition, the study found that 14% of the wage gap reflects the different occupations of men and women.

Despite the addition of a rich variety of workplace variables, roughly 38% of the male-female pay gap remains baffling. After accounting for differences in worker and workplace characteristics, women earn roughly 92 cents for every dollar earned by men. This means that worker and workplace characteristics account for 12 cents of the 20-cent gap (for every dollar earned) observed between men and women in the raw data.

The study *The "who, what, when and where" of gender pay differentials, 1999* (71-584-MIE, no. 4, free) is now available from Statistics Canada's Web site ([www.statcan.ca](http://www.statcan.ca)). From *Our products and services* page, choose *Free publications* and then *Labour*. The study is also available on the Web site of Human Resources Development Canada's Applied Research Branch ([www.hrdc-drhc.gc.ca/arb](http://www.hrdc-drhc.gc.ca/arb)). A paper version (71-584-MPE, \$15) will be available soon.

For more information, or to enquire about concepts, methods or data quality, contact Marie Drolet, Business and Labour Market Analysis Division, at (613) 951-5691 or Nathalie Caron, Labour Statistics Division, at (613) 951-4090; fax: (613) 951-4087; [labour@statcan.ca](mailto:labour@statcan.ca).

## ■ *E-business*

Small firms are less likely to have access to the Internet compared with their medium-sized and large counterparts, according to a new issue in the Connectedness series entitled *Embracing e-business: Does size matter?*

This report shows that medium-sized and large businesses have been quick to adopt the Internet and to create their own Web sites. But when it comes to more sophisticated business applications, such as buying and selling online, businesses of all sizes in Canada are slow to implement.

While size does appear to matter as to whether a firm is connected, industry also plays an important role. Industries in the information and cultural sector, as well as those in educational services, were clear leaders in both Internet use and Web site ownership, regardless of firm size.

Data for this report, which came from the annual Survey of Electronic Commerce and Technology, showed that 68% of small firms had Internet access in 2001, well below the proportion of 91% among medium-sized firms, and 94% among large firms. (Firm size groupings were based on the number of full-time employees. Small firms had up to 19 employees, medium firms from 20 to 99, and large firms 100 or more. For manufacturing industries, medium firms had between 20 and 499, and large firms 500 or more.)

Roughly 29% of all firms had their own Web site in 2001, up slightly from 26% the year before. In 2001, these firms accounted for 81% of Canada's gross business income, indicating that large firms continue to dominate the Internet market. About 74% of large firms had a Web site in 2001, compared with 57% of medium-sized firms and only 24% of small firms.

Differences in size and industry were also apparent for selling and purchasing online. However, businesses of all sizes have been slower to adopt these more sophisticated e-business applications, compared with Internet connectivity and Web site ownership.

The proportion of firms selling online remains low, dropping from 10% in 1999 to 7% in 2001. However, the dollar amount of online sales has been steadily increasing—from \$4.2 billion in 1999 to \$10.4 billion in 2001. This suggests that e-commerce is growing and consolidation is occurring in the electronic marketplace. In 2001, 6% of small businesses were selling online, compared with 12% of medium-sized firms and 15% of large firms.

Smaller firms accounted for relatively more business-to-consumer transactions than did large firms. In 2001, such sales by small and medium-sized enterprises accounted for 25% of their total Internet sales, compared with 18% for large firms. This may indicate that the flexibility of small firms allows them to move more quickly to take advantage of market opportunities, and to customize their operations to satisfy market demand.

The proportion of firms that made purchases online was higher than the proportion of firms selling over the Internet. Moreover, this proportion increased from 18% in 2000 to 22% in 2001. About 20% of small firms, 33% of medium-sized firms and 52% of large firms purchased online, again emphasizing the gap between large and small.

The leading sectors for both selling and purchasing online were again information and cultural industries, and educational services. However, while both sectors recorded a relatively high proportion of small firms engaging in online sales and purchases, the gap between small and large firms was significant for online purchasing, but negligible for online selling.

Canadian businesses, regardless of their size or sector, identified two major barriers to e-business implementation. The most common, cited by 52% of respondents, was that the firm's goods or services did not lend themselves to Internet transactions. The second major barrier, resistance to alter the current structure of the firm and the preference to maintain the current business model, was cited by 36% of firms.

This new issue in the Connectedness series, *Embracing e-business: Does size matter?* (56F0004MIE, no. 6, free), is now available on Statistics Canada's Web site ([www.statcan.ca](http://www.statcan.ca)). From *Our products and services* choose *Research papers* (free), then *Communications*.

For more information, or to enquire about concepts, methods or data quality, contact George Sciadas at (613) 951-6389; [george.sciadas@statcan.ca](mailto:george.sciadas@statcan.ca) or Heidi Ertl (613) 951-1891; [heidi.ertl@statcan.ca](mailto:heidi.ertl@statcan.ca), Science, Innovation and Electronic Information Division.

## ■ **Organizational and technological change**

The second working paper based on data concerning organizational and technological change from the 2000 Survey of Electronic Commerce and Technology is now available.

From 1998 to 2000, 4 out of 10 private sector firms introduced organizational change by improving organizational structures or implementing new management techniques.

About 44% of firms in the goods-producing sector adopted organizational change, compared with 38% of firms in the services-producing sector. Just over two-thirds of firms in services provided intangible

services, with the remaining services firms offering goods-related services. Both of these sub-sectors showed the same propensity to adopt organizational change.

Firm size affected the rate of adoption of organizational change. About 82% of companies with 100 to 499 full-time employees adopted organizational change, twice the 41% rate among enterprises with 1 to 99 full-time employees. Firms with 500 or more had the highest rate, at 86%.

These findings might indicate that organizational change depends in part on the need for formal structures within firms, and that smaller firms (based on employment size) have less sophisticated organizational structures in place. Also, organizational change, which costs time and effort, affects resources, especially among smaller firms.

The paper also showed that 44% of firms adopted technological change by introducing new or significantly improved technologies between 1998 and 2000.

The 2000 Survey of Electronic Commerce and Technology collected data on four methods of introducing technological change. Purchasing off-the-shelf technologies was the most popular—this was done by three-quarters of the private sector enterprises that introduced changes. Customizing or significantly modifying existing technologies ranked second.

The working paper *An overview of organizational and technological change in the private sector, 1998-2000* (88F0006XIE, no. 9, free) is available on Statistics Canada's Web site ([www.statcan.ca](http://www.statcan.ca)). From *Our products and services* choose *Research papers* (free), then *Science and technology*.

For more information, or to enquire about concepts, methods or data quality, contact Louise Earl, Science, Innovation and Electronic Information Division, at (613) 951-2880 or [louise.earl@statcan.ca](mailto:louise.earl@statcan.ca).

## ■ **Financing innovation**

Certain financial strategies are more advantageous than others for small firms when it comes to supporting their investments in research and development and innovation, according to a new study that profiles the use that small business makes of different financial instruments.



The study showed that small firms using more long-term debt channel fewer of their investment resources into research and development, which is strongly related to growth and innovation. More debt-intensive financial structures constrain such investments.

The businesses this study profiles are 'successful entrants,' the elite 20% of new businesses that have survived their first decade of life. These firms come from many different sectors of the economy, representing a broad range of goods and service industries.

For the small firms examined, increasing debt financing reduces research and development. When the study took into account differences in the research and development profiles of small firms, it found little evidence that different financial strategies affected the likelihood that a firm would introduce new products or services.

Small businesses face a more uncertain competitive environment than larger firms, evidenced by more variable rates of return and higher rates of failure. Firms that operate in riskier, innovative environments can be expected to face higher costs of external finance, which may lead many to rely more extensively on internal funds.

This study does not show that small firms are debt-constrained or equity-constrained. Small firms in high-knowledge industries may use more equity because debt is harder to obtain. Alternatively, they may use more equity because they prefer equity over debt.

But it does suggest that the type of financing has some bearing on the firm's tendency to invest in research and development. Firms that use more long-term debt channel fewer of their investment resources into research and development.

Data for this study came from the 1996 Survey of Operating and Financing Practices, which collected data on the business strategies and financial characteristics of successful small firms.

The study found that small firms rely heavily on equity financing. On average, nearly one half (47%) of small-firm financing comes from equity sources. More than 80% of this equity financing is retained earnings.

Traditional debt financing is the next major source of capital for small firms. On balance, 35% of the balance sheet is in the form of debt financing. More innovative

sources of capital, such as venture capital, joint ventures and public equity markets, represent only small additions to the average balance sheet.

On average, small firms do not exhibit diversified financial structures. They rely on small numbers of instruments and sources of funding when financing their activities.

Differences in small-firm balance sheets are most apparent when comparing high-knowledge industries to low-knowledge industries. Small businesses in high-knowledge industries—those that place more emphasis on research and development and skilled workers—are far more equity-intensive than firms in low-knowledge industries. Debt financing plays a greater role outside the high-knowledge sector.

*Financing innovation in new small firms: New evidence from Canada* (11F0019MIE, no. 190, free) is now available on Statistics Canada's Web site ([www.statcan.ca](http://www.statcan.ca)). From *Our products and services choose Research papers* (free), then *Social conditions*.

For more information, or to enquire about concepts, methods or data quality, contact John Baldwin, Micro-economic Analysis Division, at (613) 951-8588 or Guy Gellatly at (613) 951-3758.

## ■ *New firms in manufacturing*

The dynamic process that brings new firms into an industry and forces old firms out dramatically reshapes Canada's industrial landscape, according to a new report that examines competitive restructuring in the manufacturing sector.

Each year, a large number of firms attempt to break into markets. According to this report, between 15% and 20% of all firms are new each year in Canada. The proportion is slightly higher in services industries than in manufacturing.

However, because they are usually smaller on average than established companies, new firms account for a less significant share of total employment, between 2% and 4%, depending on how their size is measured.

Five years down the road, however, some of these new companies have grown and prospered, while many have gone out of business. New companies that originally represented 15% to 20% of the total accounted for only 5% to 6% five years later.



Despite this decline in share, they still accounted for 2.5% of total employment because the firms that survived had grown so much that the importance of the entry cohort was more or less maintained over the first five years of existence.

Over time, the cumulative effect of successive cohorts of new entrants can be significant. In the manufacturing sector, 10 years of entrants accounted for some 16% of shipments, while 20 years of entrants accounted for about 34% of shipments. Similar long-run estimates are apparent for the services sector as well.

New firms entering manufacturing are important for two reasons. First, a large percentage of firms in any period are recent entrants. And while many new firms do not survive, some do and grow. Taken together, successive cohorts of recent entrants, both the more and less mature, account for a significant proportion of output at any point in time.

Three different databases were used to determine the extent to which the effect of entry depended on the data file used: the Business Register file, the Longitudinal Employment Analysis Program, or the Annual Survey of Manufactures.

Different databases will yield slightly different results because of the characteristics of each file. For example, a file may capture the business universe at a different level of organizational structure or at a different stage of the business life cycle. The earlier the existence of businesses is detected, the larger the entry rate.

The report analyzes how specific measures may vary across files, depending on how each determines whether a firm is new. It examines the importance of entry by using the employment share of new entrants as well as their share of the business population. Characteristics of firms, such as employment, are usually measured differently within each file, so differences in employment-weighted measures will vary as a consequence.

The differences between short- and long-term entry rates are used to explore the importance of new firms at different stages of their evolution (after one year, five years, and so on).

The research paper *The importance of entry to Canadian manufacturing with an appendix on measurement issues* (11F0019MIE, no. 189, free) is now available on Statistics Canada's Web site ([www.statcan.ca](http://www.statcan.ca)). From *Our products and services*, choose *Research papers* (free), then *Social conditions*.

For more information, or to enquire about concepts, methods or data quality, contact Desmond Beckstead, Micro-economic Analysis Division, at (613) 951-6199.

## ■ UPCOMING CONFERENCE

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### ■ *XIX<sup>th</sup> International Methodology Symposium: Modelling survey data for social and economic research* November 6-8, 2002, Ottawa

The Statistics Canada Methodology Symposium series started in 1984 as an international event to address issues of statistical methodology relevant to the work of a government statistical agency. The aim has been to gain exposure in the broader statistical community including universities, industry, and other government organizations.

This year, the plan is to bring together methodologists and analysts working in a variety of domains where survey data are used for analysis and inference. The subject areas of interest include national statistical accounts, public health, education, environmental protection, evaluation of social programs, transportation, travel and leisure, income and wealth distribution, labour dynamics, and demography, among others.

Applications will include causal modelling, modelling of transitions and duration data, structural equation modelling, multilevel modelling, event history analysis, cohort analysis, and analysis of trends. The emphasis will be on the use of survey data with complex structure (correlated, hierarchical, longitudinal, from multiple frames), with an appropriate accounting for sampling design.

Invited and contributed papers will be presented and discussed over the two days of the symposium, which will be preceded by a day of workshops. Proceedings from the conference will be published and disseminated.

For further information contact: Symposium2002@statcan.ca, or by regular mail: SYMPOSIUM 2002, Attention Mary March, Statistics Canada, R.H. Coats Building, 3rd floor, Tunney's Pasture, Ottawa, ON K1A 0T6, Canada.

# Key labour and income facts

## *Selected charts and analysis*

This section presents charts and analysis featuring one or more of the following sources. For general inquiries, contact Joanne Bourdeau at (613) 951-4722; [bourjoa@statcan.ca](mailto:bourjoa@statcan.ca).

### **Administrative data**

*Small area and administrative data*

Frequency: Annual

Contact: Customer Services

(613) 951-9720

### **Business surveys**

*Annual Survey of Manufactures*

Frequency: Annual

Contact: Dissemination agent

(613) 951-9497

*Annual Surveys—Service Industries*

Frequency: Annual

Contact: Lucie Lussier

(613) 951-0410

*Business Conditions Survey of*

*Manufacturing Industries*

Frequency: Quarterly

Contact: Claude Robillard

(613) 951-3507

### **Census**

*Census labour force characteristics*

Frequency: Quinquennial

Contact: Michel Côté

(613) 951-6896

*Census income statistics*

Frequency: Quinquennial

Contact: John Gartley

(613) 951-6906

### **Employment and income surveys**

*Labour Force Survey*

Frequency: Monthly

Contact: Marc Lévesque

(613) 951-4090

*Survey of Employment, Payrolls and Hours*

Frequency: Monthly

Contact: Sylvie Picard

(613) 951-4090

*Help-wanted Index*

Frequency: Monthly

Contact: Sylvie Picard

(613) 951-4090

*Employment Insurance*

*Statistics Program*

Frequency: Monthly

Contact: Sylvie Picard

(613) 951-4090

*Major wage settlements*

Bureau of Labour Information

(Human Resources

Development Canada)

Frequency: Quarterly

Contact: (819) 997-3117

1 800 567-6866

*Labour income*

Frequency: Quarterly

Contact: Anna MacDonald

(613) 951-3784

*Survey of Labour and Income Dynamics*

Frequency: Annual

Contact: Client Services

(613) 951-7355 or

1 888 297-7355

*Survey of Financial Security*

Frequency: Occasional

Contact: Client Services

(613) 951-7355 or

1 888 297-7355

*Survey of Household Spending*

Frequency: Annual

Contact: Client Services

(613) 951-7355 or

1 888 297-7355

### **General social survey**

*Education, work and retirement*

Frequency: Occasional

Contact: Client Services

(613) 951-5979

*Social and community support*

Frequency: Occasional

Contact: Client Services

(613) 951-5979

*Time use*

Frequency: Occasional

Contact: Client Services

(613) 951-5979

### **Pension surveys**

*Pension Plans in Canada Survey*

Frequency: Annual

Contact: Patricia Schembari

(613) 951-9502

*Quarterly Survey of Trusteed*

*Pension Funds*

Frequency: Quarterly

Contact: Bob Anderson

(613) 951-4034

### **Special surveys**

*Survey of Work Arrangements*

Frequency: Occasional

Contact: Ernest B. Akyeampong

(613) 951-4624

*Adult Education and Training Survey*

Frequency: Occasional

Contact: Client Services

(613) 951-7355 or

1 888 297-7355

*Graduate Surveys*

(Postsecondary)

Frequency: Occasional

Contact: Client Services

(613) 951-7608

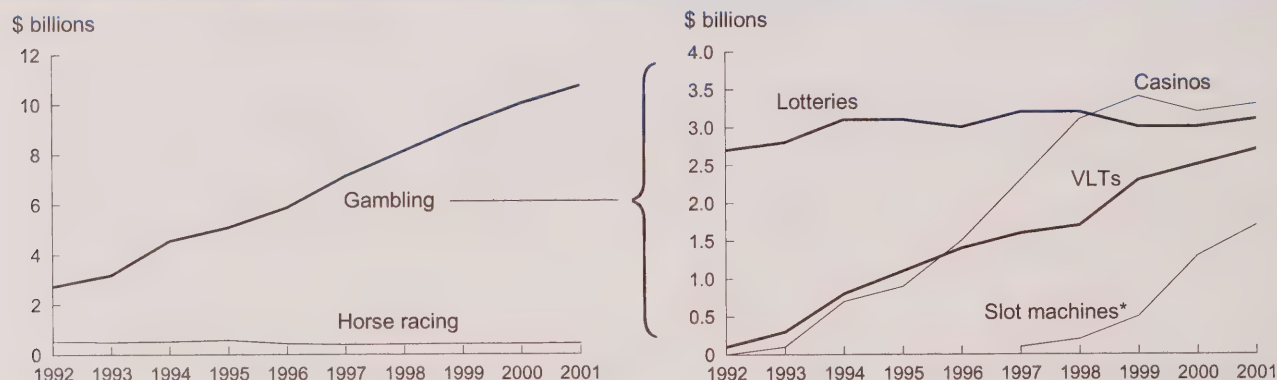
# Taking a chance?

Net revenue from government-run lotteries, video lottery terminals (VLTs), and casinos rose from \$2.7 billion in 1992 to \$10.7 billion (total money wagered on non-charity lotteries, casinos and VLTs, minus prizes and winnings) in 2001. Of this \$10.7 billion, \$6.0 billion was profit.

Net revenue from pari-mutuel betting (horse racing) dropped from \$530 million to \$440 million over the same period (1992 to 2001).

In 2000, lotteries accounted for 30% of all net non-charity gambling revenue, casinos 32%, VLTs 25%, and slot machines outside casinos 13%.

Net revenue from government-run gambling has increased steadily.



Source: National Accounts

\* Refers to ones found outside government-run casinos (see note).

**Note:** In the late 1990s, government slot machines were introduced at racetracks in Alberta and Ontario, and at the 16 charity casinos in Alberta. As of 2002, there were 324 slot machines at 2 of 7 racetracks in Alberta, 4,981 machines at the 16 charity casinos, and over 8,650 machines at 15 racetracks in Ontario. For further information see [www.gaming.gov.ab.ca](http://www.gaming.gov.ab.ca) and [www.olgc.ca](http://www.olgc.ca).



Average gambling expenditure per person 18 and over in 2000 ranged from \$106 in the three territories to \$536 in Manitoba, with a national average of \$424. (Survey of Household Spending (SHS) and National

Accounts rankings of provincial expenditures differ, in part because the SHS includes both charity and non-charity gambling activity.)

### Gambling revenues, profits and expenditures

	Gambling revenue*		Gambling profit**		Share of total revenue***		Expenditure per capita (18+) <sup>†</sup>	
	1992	2000	1992	2000	1992	2000	1992	2000
	\$ millions (current)				%		\$	
<b>Canada</b>	<b>2,734</b>	<b>10,019<sup>††</sup></b>	<b>1,680</b>	<b>5,553</b>	<b>1.9</b>	<b>5.2</b>	<b>130</b>	<b>424</b>
Newfoundland and Labrador	80	166	42	93	2.3	4.0	190	396
Prince Edward Island	20	28	7	16	2.7	3.0	205	268
Nova Scotia	125	319	72	153	2.8	5.6	180	436
New Brunswick	117	176	49	88	2.7	3.4	210	299
Quebec	693	2,584	472	1,376	1.8	5.0	130	447
Ontario	853	3,117 <sup>††</sup>	529	1,836	1.9	4.8	105	348
Manitoba	153	459	105	228	2.5	5.5	185	536
Saskatchewan	62	319	39	263	1.1	4.4	85	423
Alberta	225	1,182	125	954	1.6	6.3	120	526
British Columbia	403	918	239	539	2.2	3.6	155	290
Yukon, Northwest Territories and Nunavut	5	7	1	7	0.3	0.3	80	106

Sources: National Accounts, Public Institutions (Financial management statistics), and post-censal population estimates.

\* Total revenue wagered on non-charity lotteries, casinos and VLTs, minus prizes and winnings.

\*\* Net income of provincial governments from total gambling revenue, less operating and other expenses (see Data sources and definitions).

\*\*\* The 2000 share of total revenue calculation is based on 2000 gambling revenue and 1999 total provincial revenue. The 2000 provincial revenue will be available in autumn 2002.

<sup>†</sup> Persons 18 and over were selected as this is the legal age of gambling in most provinces.

<sup>††</sup> The Ontario data currently exclude slot machine revenue, but it is included in the national total. The series will be revised in autumn 2002.

Compared with workers in non-gambling industries, those in gambling were more likely to be women (55% versus 46%), under 35 (52% versus 38%), paid by the hour (78% versus 63%), and paid less (\$15 hourly versus \$17).

Employment in the gambling industry rose from 12,000 in 1992 to 41,000 in 2001.

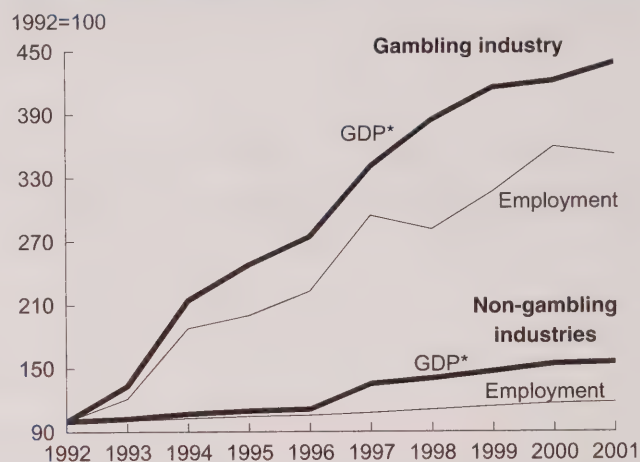
### Characteristics of workers

	Gambling		Non-gambling	
	1992	2001	1992	2001
	'000			
<b>Total employed</b>	<b>12</b>	<b>41</b>	<b>12,830</b>	<b>15,036</b>
<b>Sex</b>	%			
Men	35	45	55	54
Women	65	55	45	46
<b>Age</b>				
15 to 34	57	52	45	38
35 and over	43	48	55	62
<b>Education</b>				
High school graduation or less*	66	52	57	46
Postsecondary certificate or diploma	21	36	27	34
University degree	13	12	16	20
<b>Work status</b>				
Full-time	59	82	82	82
Part-time	41	18	18	18
<b>Province</b>				
Atlantic provinces	8	5	7	7
Quebec	9	14	24	23
Ontario	28	46	39	39
Prairie provinces	30	23	17	18
British Columbia	25	12	13	13
<b>Class of worker</b>				
Employee	98	99	85	85
Self-employed	F	F	15	15

Source: Labour Force Survey

\* May include some uncompleted postsecondary.

### Gambling outpaced other industries.



Sources: Labour Force Survey; National Accounts

\* The price, at basic prices, of the goods and services produced. The GDP figures for the gambling industry refer strictly to wagering activities, such as lottery ticket sales, VLT receipt sales, and bets at casinos. Other economic spinoffs, such as hotel and restaurant business, security services, or building and equipment maintenance, are not included.

### Characteristics of jobs

	Gambling		Non-gambling	
	1997	2001	1997	2001
	'000			
<b>Employees*</b>	<b>34</b>	<b>40</b>	<b>11,419</b>	<b>12,727</b>
	%			
Unionized**	30	31	34	32
Non-unionized	70	69	66	68
Permanent job	91	94	89	87
Temporary job	9	6	11	13
Usually receive tips	27	27	7	7
No tips	73	73	93	93
Paid by the hour	80	78	61	63
Not paid hourly	20	22	39	37
<b>Average hourly earnings†</b>	\$			
Men: full-time	13.60	17.70	17.80	19.80
Women: full-time	13.10	14.60	14.80	16.20

Source: Labour Force Survey

\* More detailed questions on employees were introduced with the 1997 revision of the Labour Force Survey.

\*\* Includes persons who are not union members, but whose jobs are covered by collective agreements.

† Includes tips and commissions.

One in five women and men living alone reported spending money on casinos, slot machines or VLTs; however, the men spent more than twice as much as the women—\$1,120 compared with \$450. The expenditure figures are not adjusted for any winnings.

As well, households consistently under-report the amount of money they spend on gambling. Comparisons with Lottery Corporation figures, for example, have shown that households under-report their government lottery purchases by more than 50%.

## Household expenditures on gambling activities

	At least one gambling activity		Government lotteries		Other lotteries/raffles, etc.		Casinos, slot machines and VLTs		Bingos	
	\$	%	\$	%	\$	%	\$	%	\$	%
<b>All households</b>										
1999	499	76	246	67	76	32	631	20	655	10
2000	492	74	245	64	84	31	546	21	743	9
<b>One-person households*</b>	476	65	184	54	82	23	796	19	549	8
Men	567	67	224	57	101	22	1,120	20	179	2
18 to 44	511	64	164	52	60	23	902	25	F	F
45 to 64	633	70	280	63	152	23	1,282	18	F	F
65 and over	571	67	240	57	109	20	1,649	13	F	F
Women	388	64	143	52	65	24	454	18	604	13
18 to 44	255	61	114	51	65	26	166	21	514	9
45 to 64	482	73	146	58	58	27	1,059	18	496	13
65 and over	380	61	153	49	69	21	255	16	671	15
<b>All households</b>										
Newfoundland and Labrador	420	71	242	55	73	40	253	10	572	19
Prince Edward Island	412	63	208	50	97	31	385	9	902	10
Nova Scotia	502	76	233	64	72	42	421	23	748	14
New Brunswick	477	73	234	63	51	36	430	11	897	15
Quebec	453	80	251	72	62	23	630	19	503	10
Ontario	528	72	255	62	97	30	460	24	969	8
Manitoba	537	75	228	57	64	46	462	28	879	13
Saskatchewan	512	78	195	57	77	54	538	27	873	11
Alberta	610	73	228	57	123	41	1,023	20	622	10
British Columbia	385	69	237	61	62	30	432	16	591	5
<b>Income after tax</b>										
Less than \$20,000	412	62	172	52	74	18	740	12	557	11
\$20,000 to 39,999	448	74	231	64	70	30	538	19	680	10
\$40,000 to 59,999	488	79	267	69	74	35	386	24	943	9
\$60,000 to 79,999	655	81	315	70	100	41	647	29	1,059	8
\$80,000 and over	555	78	263	68	121	40	581	30	569	6

Source: Survey of Household Spending

Note: Expenditures are per spending household. Unless otherwise indicated, figures are for 2000.

\* Using one-person households allows examination of individual characteristics. Persons 18 and over were selected since 18 is the legal age for gambling in most provinces.



Gambling participation and expenditure rates increased with household income. For example, 62% of households with incomes of less than \$20,000

gambled in 2000 and spent an average of \$412, while equivalent figures for those with incomes of \$80,000 or more were 78% and \$555.

### Household expenditure on all gambling activities by income groups, 2000

	Average expenditure		Percentage reporting	Gaming as % of total income	
	All households	Reporting households		All households	Reporting households
	\$	\$	%	%	%
<b>Income after tax</b>	<b>365</b>	<b>492</b>	<b>74</b>	<b>0.6</b>	<b>0.8</b>
Less than \$20,000	255	412	62	1.9	3.0
\$20,000 to 39,999	333	448	74	1.1	1.5
\$40,000 to 59,999	385	488	79	0.8	1.0
\$60,000 to 79,999	533	655	81	0.8	1.0
\$80,000 and over	434	555	78	0.4	0.5

Source: Survey of Household Spending

### Data sources and definitions

**Labour Force Survey:** a monthly household survey that collects information on labour market activity, including detailed occupational and industrial classifications, from all persons 15 years and over.

**National Accounts:** The quarterly Income and Expenditure Accounts (IEA) is one of several programs constituting the System of National Accounts. The IEA produces detailed annual and quarterly income and expenditure accounts for all sectors of the Canadian economy, namely households, businesses, governments and non-residents.

**Survey of Household Spending:** an annual survey that began in 1997 and replaced the Family Expenditure Survey and the Household Facilities and Equipment Survey. It collects data on expenditures, income, household facilities and equipment, and other characteristics of families and individuals living in private households.

**Gambling industries:** This industry group covers establishments primarily engaged in operating gambling facilities, such as casinos, bingo halls and video gaming terminals; or providing gambling services, such as lotteries and off-track betting. It excludes horse race tracks and hotels, bars and restaurants that have casinos or gambling machines on the premises.

**Gambling profit:** net income from provincial and territorial government-run lotteries, casinos and VLTs, after prizes and winnings, operating expenses (including wages and salaries), payments to the federal government and other overhead costs are deducted.

**Gambling revenue:** all money wagered on provincial and territorial government-run lotteries, casinos and VLTs, less prizes and winnings. Gambling revenue generated by and for charities and on Indian reserves is excluded.

**Government casino:** a government-regulated commercial casino. Permits, licences and regulations for casinos, both charity and government, vary by province. Government casinos, now permitted in several provinces, also vary by the degree of public and private involvement in their operations and management. Some government casinos are run entirely as crown corporations, while others contract some operations—for example, maintenance, management or services—to the private sector.

**Video lottery terminal (VLT):** a coin-operated, free-standing electronic game of chance. Winnings are paid out through receipts that are turned in for cash, as opposed to cash payments from slot machines. Such terminals are regulated by provincial lottery corporations.

# Unionization

At 12.8 million, average paid employment (employees) during the first half of 2002 was 216,000 higher than during the same period a year earlier. Union membership also grew, from 3.8 million to 3.9 million. The increase in union membership, however, was proportionately larger than that for employees, so the union rate (density) rose from 30.0% to 30.3%.

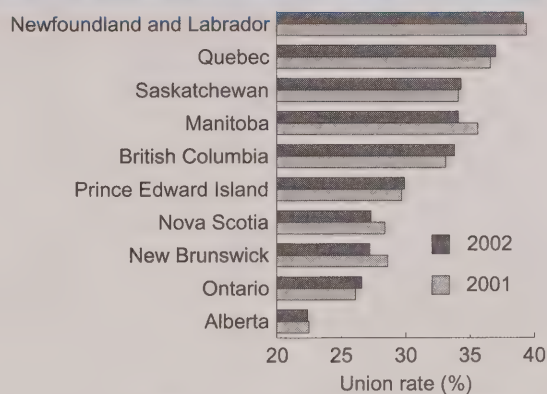
Women accounted for almost all the increase in union membership. Their rate rose to 30.2%, for the first time virtually matching that of men (30.3%).

Most of the increase in membership occurred in the public sector, with the rate rising from 71.0% to 72.5%. The private sector rate remained almost unchanged at 18.0%.

Five provinces (Prince Edward Island, Quebec, Ontario, Saskatchewan and British Columbia) recorded rate increases, the rest saw declines.

The rate among full-time employees rose from 31.5% to 31.9%, but among part-time workers, it remained virtually unchanged (23.3%).

## Newfoundland and Labrador remains the most unionized province; Alberta, the least.



Source: Labour Force Survey, January-to-June averages

## Data sources

Information on union membership, density and coverage by various socio-demographic characteristics, including earnings, are from the Labour Force Survey. Further details can be obtained from Marc Lévesque, Labour Statistics Division, Statistics Canada at (613) 951-4090.

Data on strikes, lockouts and workdays lost, and those on major wage settlements were supplied by Human Resources Development Canada. Further information on

these statistics may be obtained from Angèle Charbonneau, Workplace Information Directorate, HRDC at 1 800 567-6866.

Only abridged tables have been included here. The full versions are available, without charge, through the "Key labour and income facts" link in the online version of *Perspectives* ([www.statcan.ca/english/indepth/75-001/peonline.htm](http://www.statcan.ca/english/indepth/75-001/peonline.htm)).

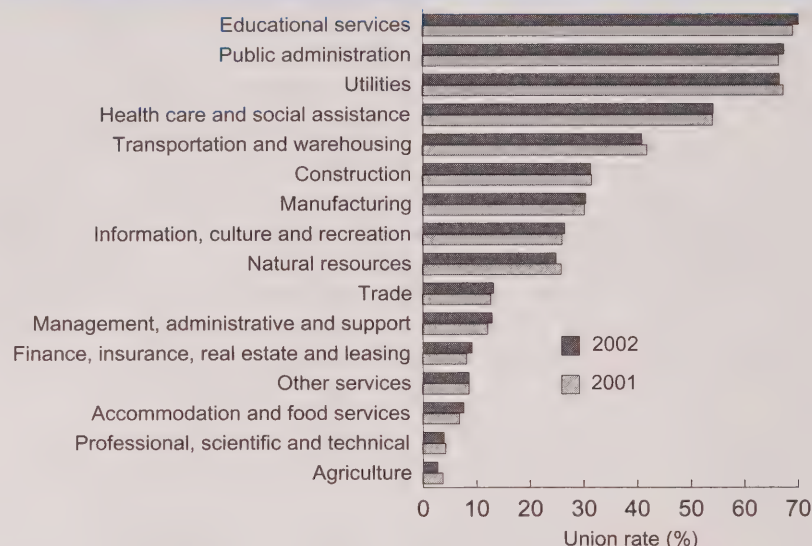
Increases were recorded for both permanent and non-permanent employees. The rate rose in the largest firms (those with over 500 employees) and in those with between 20 and 99 employees; it fell in firms with under 20 employees and in those with between 100 and 500 employees.

Unionization rose in 8 of the 16 major industry groups: manufacturing; trade; finance, insurance, real estate and leasing; management services; educational services; information, culture and recreation; accommodation and food; and public administration. It remained unchanged in health care and social assistance services and fell in the rest of the industry groups.

Among the 10 major occupational groups, union density rose in 6 and fell in 4—management, health, trade and transport occupations, and production occupations.

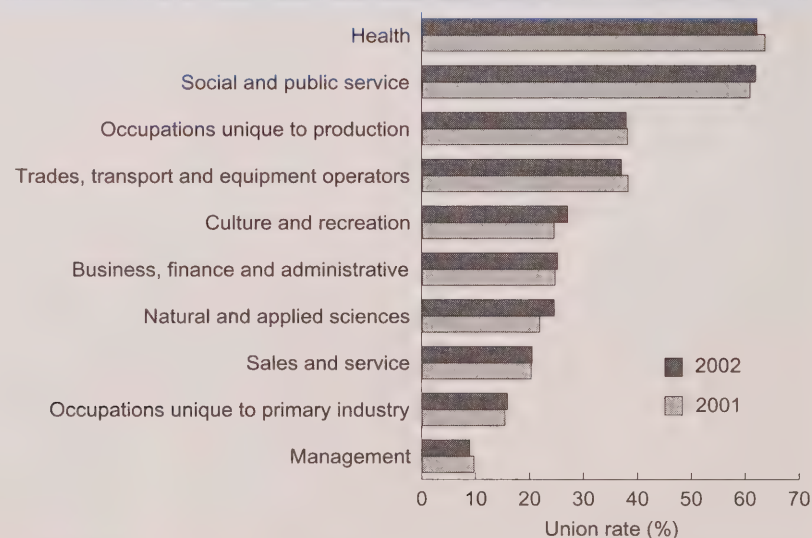
The number of employees who were not union members but were covered by collective agreements averaged 270,000, down slightly from 276,000 a year earlier.

### The highest union rates were in public-sector industries.



Source: Labour Force Survey, January-to-June averages

### Unionization in community service occupations far outpaced that of others.



Source: Labour Force Survey, January-to-June averages



## Union membership and coverage in the first half of 2001 and 2002

	2001*			2002*		
	Total employees	Union density		Total employees	Union density	
		Members	Coverage**		Members	Coverage**
	'000	%	%	'000	%	%
<b>Both sexes</b>	<b>12,628</b>	<b>30.0</b>	<b>32.2</b>	<b>12,844</b>	<b>30.3</b>	<b>32.4</b>
Men	6,483	30.7	33.0	6,599	30.3	32.6
Women	6,145	29.2	31.3	6,245	30.2	32.1
<b>Sector†</b>						
Public	2,841	71.0	74.9	2,885	72.5	75.9
Private	9,787	18.1	19.8	9,959	18.0	19.7
<b>Age</b>						
15 to 24	2,156	12.8	14.6	2,171	13.5	15.4
25 to 54	9,373	33.2	35.5	9,463	33.5	35.7
25 to 44	6,613	29.6	31.9	6,564	30.3	32.5
45 to 54	2,760	41.8	44.3	2,899	40.8	43.0
55 and over	1,098	36.3	38.2	1,210	34.9	36.7
<b>Education</b>						
Less than Grade 9	378	30.4	31.7	369	28.9	30.9
Some high school	1,591	23.0	24.4	1,580	22.3	23.7
High school graduation	2,635	27.3	29.0	2,739	28.1	29.7
Some postsecondary	1,270	23.9	25.9	1,226	23.8	25.7
Postsecondary certificate or diploma	4,242	33.8	36.2	4,374	33.7	36.1
University degree	2,511	33.8	37.0	2,556	34.9	37.6
<b>Province</b>						
Atlantic	877	30.8	32.3	891	29.9	31.2
Newfoundland and Labrador	180	39.4	40.5	183	39.2	40.5
Prince Edward Island	53	29.7	31.7	54	29.9	31.4
Nova Scotia	358	28.4	30.2	359	27.3	28.3
New Brunswick	286	28.6	29.9	295	27.2	29.0
Quebec	2,948	36.6	40.1	3,073	37.0	40.9
Ontario	5,036	26.1	27.9	5,097	26.6	28.1
Prairies	2,172	27.3	29.5	2,215	26.9	29.0
Manitoba	469	35.6	37.3	477	34.1	35.8
Saskatchewan	369	34.1	35.9	373	34.3	36.0
Alberta	1,335	22.5	25.0	1,365	22.4	24.7
British Columbia	1,594	33.1	34.5	1,568	33.8	34.9
<b>Work status</b>						
Full-time	10,299	31.5	33.9	10,457	31.9	34.1
Part-time	2,329	23.2	24.7	2,387	23.3	24.8
<b>Industry</b>						
Goods-producing	3,173	30.6	32.7	3,195	30.8	32.9
Agriculture	116	3.8	4.7	105	2.7	3.6
Natural resources	233	25.9	27.6	224	24.9	26.8
Utilities	120	67.4	70.9	129	66.6	67.9
Construction	535	31.7	33.7	548	31.4	33.8
Manufacturing	2,168	30.3	32.4	2,188	30.4	32.7
Service-producing	9,455	29.8	32.0	9,649	30.1	32.2
Trade	2,035	12.8	14.3	2,099	13.2	14.5
Transportation and warehousing	643	42.0	44.1	612	40.9	43.1
Finance, insurance, real estate and leasing	747	8.2	10.4	753	9.2	10.8
Professional, scientific and technical	678	4.3	5.9	668	3.9	5.4
Management, and administrative and support	392	12.2	14.0	421	12.9	14.9
Education	948	69.2	73.2	982	70.2	73.6
Health care and social assistance	1,351	54.2	56.5	1,383	54.2	56.7
Information, culture and recreation	595	26.1	28.2	598	26.5	28.2
Accommodation and food	862	6.9	7.3	901	7.6	8.3
Other	446	8.7	10.1	458	8.6	10.2
Public administration	760	66.6	71.9	775	67.5	72.3

## Union membership and coverage in the first half of 2001 and 2002 (concluded)

Occupation	2001*			2002*		
	Total employees	Union density		Total employees	Union density	
		Members	Coverage**		Members	Coverage**
	'000	%	%	'000	%	%
<b>Occupation</b>						
Management	871	9.6	12.6	892	8.9	11.8
Business, finance and administrative	2,487	24.6	27.0	2,542	25.2	27.0
Professional	316	17.4	20.1	338	18.6	21.0
Financial and administrative	679	23.2	25.9	694	22.1	24.2
Clerical	1,491	26.8	28.9	1,510	28.1	29.7
Natural and applied sciences	888	21.8	24.5	857	24.6	27.0
Health	695	63.5	65.8	732	62.1	65.1
Professional	79	35.9	42.8	86	40.9	48.5
Nursing	230	81.7	83.2	250	81.9	84.2
Technical	180	59.3	62.1	169	56.7	59.8
Support staff	207	57.6	58.5	228	52.5	54.2
Social and public service	969	60.7	63.7	979	61.9	64.6
Legal, social and religious workers	386	38.1	40.4	394	40.0	42.7
Teachers and professors	583	75.7	79.1	585	76.6	79.3
Secondary and elementary	405	86.5	89.3	412	88.2	90.0
Other	178	51.2	55.8	174	49.2	53.9
Culture and recreation	281	24.4	27.5	268	27.1	29.6
Sales and service	3,339	20.2	21.7	3,456	20.5	22.0
Wholesale	359	5.5	6.9	349	5.8	8.1
Retail	939	12.5	13.7	946	12.3	13.4
Food and beverage	489	8.7	9.2	517	9.7	10.4
Protective services	200	57.9	63.9	222	54.9	59.4
Child care and home support	233	35.4	38.2	241	36.7	38.4
Travel and accommodation	1,119	26.6	27.8	1,181	26.3	27.7
Trades, transport and equipment operators	1,710	38.1	40.2	1,709	37.0	39.1
Contractors and supervisors	103	32.2	35.3	115	28.7	31.7
Construction trades	202	38.8	41.3	217	39.7	42.3
Other trades	684	41.3	43.6	655	40.1	42.4
Transportation equipment operators	463	36.2	37.8	465	35.6	37.1
Helpers and labourers	259	34.6	36.5	256	32.9	35.2
Unique to primary industries	241	15.3	16.4	229	15.9	17.3
Unique to production	1,146	38.0	40.2	1,181	37.9	40.3
Machine operators and assemblers	959	37.8	40.0	990	37.5	39.9
Labourers	187	38.9	40.9	191	40.1	42.5
<b>Workplace size</b>						
Under 20 employees	4,165	12.7	14.2	4,281	12.6	14.1
20 to 99 employees	4,152	30.1	32.2	4,218	31.2	33.3
100 to 500 employees	2,754	42.5	45.4	2,767	42.2	44.8
Over 500 employees	1,557	54.0	56.8	1,577	54.7	57.7
<b>Job tenure</b>						
1 to 12 months	3,068	14.5	16.8	2,871	14.7	16.9
Over 1 year to 5 years	4,055	21.7	23.7	4,334	22.6	24.5
Over 5 years to 9 years	1,509	31.6	33.2	1,555	29.6	31.2
Over 9 years to 14 years	1,523	42.0	44.5	1,499	42.1	44.4
Over 14 years	2,473	54.5	57.0	2,585	54.0	56.5
<b>Job status</b>						
Permanent	11,067	30.7	32.8	11,255	30.9	32.9
Non-permanent	1,560	24.8	27.5	1,589	25.8	28.5

Source: Labour Force Survey

\* January-to-June average.

\*\* Union members and persons who are not union members but who are covered by collective agreements (for example, some religious group members).

† Public sector: employees in government departments or agencies; crown corporations, or publicly funded schools, hospitals, or other institutions. Private sector: all other wage and salary earners.

Approximately 3.8 million (30.0%) employees belonged to a union in 2001. An additional 279,000 (2.2%) were covered by a collective agreement.

Employees in the public sector—government, crown corporations, and publicly funded schools or hospitals—were almost four times as likely as their private sector counterparts to belong to a union (71.4% versus 18.3%).

Almost 1 in 3 full-time employees belonged to a union, compared with about 1 in 4 part-time. Also, almost 1 in 3 permanent employees was a union member, compared with roughly 1 in 4 non-permanent.

High union rates were found among employees aged 45 to 54 (41.6%); for those with university degrees (33.8%); in Newfoundland and Labrador (38.8%) and Quebec (36.8%); in educational services (69.5%), utilities (66.4%), and public administration (66.2%) industries; and in health care occupations (63.6%).

Low union rates were recorded by 15 to 24 year-olds (13.3%), in Alberta (22.1%), in agriculture (3.3%) and professional, scientific and technical industries (4.1%), and in management occupations (8.9%).

## Union membership, 2001

	Total employees	Union member	
		Total	Density
	'000	'000	%
<b>Both sexes</b>	<b>12,768</b>	<b>3,831</b>	<b>30.0</b>
Men	6,584	2,015	30.6
Women	6,184	1,817	29.4
<b>Sector*</b>			
Public	2,822	2,014	71.4
Private	9,946	1,817	18.3
<b>Age</b>			
15 to 24	2,222	296	13.3
25 to 54	9,424	3,143	33.3
25 to 44	6,616	1,975	29.8
45 to 54	2,809	1,168	41.6
55 and over	1,122	393	35.0
<b>Education</b>			
Less than Grade 9	385	113	29.4
Some high school	1,637	370	22.6
High school graduation	2,690	741	27.6
Some postsecondary	1,250	300	24.0
Postsecondary certificate or diploma	4,302	1,460	33.9
University degree	2,503	846	33.8
<b>Province</b>			
Atlantic	906	272	30.0
Newfoundland and Labrador	189	73	38.8
Prince Edward Island	55	16	28.2
Nova Scotia	368	102	27.8
New Brunswick	294	80	27.3
Quebec	3,008	1,105	36.8
Ontario	5,079	1,328	26.1
Prairies	2,193	592	27.0
Manitoba	474	166	35.0
Saskatchewan	371	128	34.5
Alberta	1,348	298	22.1
British Columbia	1,582	535	33.8
<b>Work status</b>			
Full-time	10,494	3,298	31.4
Part-time	2,274	533	23.4
<b>Industry</b>			
Goods-producing	3,233	999	30.9
Agriculture	119	4	3.3
Natural resources	246	62	25.3
Utilities	123	82	66.4
Construction	571	181	31.7
Manufacturing	2,174	670	30.8
Service-producing	9,535	2,833	29.7
Trade	2,080	271	13.0
Transportation and warehousing	638	268	42.0
Finance, insurance, real estate and leasing	749	66	8.8
Professional, scientific and technical	663	27	4.1
Management, and administrative and support	416	53	12.9
Education	920	640	69.5
Health care and social assistance	1,359	738	54.3
Information, culture and recreation	609	158	26.0
Accommodation and food	877	64	7.3
Other	457	40	8.8
Public administration	766	507	66.2



The union rate for men (30.6%) in 2001 continued to slightly exceed that for women (29.4%).

The rate for male part-time employees (19.0%) was much lower than for full-time (31.9%). Among women however, the gap was narrower (25.3% versus 30.8%).

The unionization of women in the public sector (72.8%) exceeded that of men (69.3%), reflecting women's presence in public administration and in teaching and health positions. However, in the private sector, only 13.1% were unionized, compared with 22.6% of men. The lower rate reflected women's predominance in sales and several service occupations.

A higher-than-average union rate was recorded among men with a post-secondary certificate or diploma (34.7%), as well as those with less than grade 9 education (34.0%). For women, the highest rate was registered by those with a university degree (40.0%), reflecting unionization in occupations such as health care and teaching.

Men in permanent positions had slightly higher rates (31.6%) than women in similar jobs (30.2%). Among employees in non-permanent positions, women were slightly more unionized (24.4%) than men (23.5%).

### Union membership, 2001 (concluded)

	Total employees	Union member	
		Total	Density
	'000	'000	%
<b>Occupation</b>			
Management	863	77	8.9
Business, finance and administrative	2,503	616	24.6
Professional	317	55	17.3
Financial and administrative	684	154	22.5
Clerical	1,502	407	27.1
Natural and applied sciences	881	199	22.6
Health	702	447	63.6
Professional	80	30	37.4
Nursing	234	192	81.8
Technical	179	106	59.4
Support staff	210	119	56.8
Social and public service	947	575	60.7
Legal, social and religious workers	383	146	38.2
Teachers and professors	563	428	76.0
Secondary and elementary	389	341	87.6
Other	174	88	50.2
Culture and recreation	282	70	24.8
Sales and service	3,415	695	20.4
Wholesale	362	22	6.0
Retail	950	118	12.4
Food and beverage	510	46	9.1
Protective services	212	120	56.7
Child care and home support	234	82	35.1
Travel and accommodation	1,147	307	26.7
Trades, transport and equipment operators	1,747	658	37.7
Contractors and supervisors	104	31	30.4
Construction trades	219	85	38.6
Other trades	679	277	40.8
Transportation equipment operators	473	169	35.8
Helpers and labourers	273	96	35.2
Unique to primary industries	264	41	15.5
Unique to production	1,164	454	39.0
Machine operators and assemblers	971	377	38.8
Labourers	193	78	40.2
<b>Workplace size</b>			
Under 20 employees	4,241	537	12.7
20 to 99	4,195	1,260	30.0
100 to 500	2,756	1,177	42.7
Over 500	1,575	856	54.4
<b>Job tenure</b>			
1 to 12 months	3,076	440	14.3
Over 1 year to 5 years	4,152	923	22.2
Over 5 years to 9 years	1,523	474	31.1
Over 9 years to 14 years	1,522	638	42.0
Over 14 years	2,494	1,356	54.4
<b>Job status</b>			
Permanent	11,131	3,439	30.9
Non-permanent	1,637	392	24.0

Source: Labour Force Survey

\* Public sector: employees in government departments or agencies; crown corporations; or publicly funded schools, hospitals or other institutions.  
Private sector: all other wage and salary earners.

Unionized jobs generally provide higher earnings than non-unionized ones. The differences reflect many factors in addition to collective bargaining provisions, such as the distribution of employees by age, sex, job tenure, industry, occupation, firm size, or location. Unionized workers and jobs tend to have certain characteristics that are associated with higher earnings. For example, union density ratios are higher among men, older workers, those with higher education, employees with long tenure, and those in larger firms.

In 2001, average hourly earnings of unionized workers were higher than those of non-unionized workers. This held true for both full-time (\$20.29 versus \$17.22) and part-time (\$17.31 versus \$10.60) workers.

In addition to having higher hourly earnings, unionized part-time employees usually worked more hours each week than their non-unionized counterparts (19.4 hours versus 16.8). As a result, their average weekly earnings were nearly double (\$343.94 versus \$181.65).

On average, unionized women working full time received 90% of their male counterparts' hourly earnings. In contrast, women working part time earned 9% more than men.

### Average earnings and usual hours by union and job status, 2001

	Hourly earnings			Usual weekly hours, main job		
	All employees	Full-time	Part-time	All employees	Full-time	Part-time
	\$					
<b>Both sexes</b>	<b>17.18</b>	<b>18.25</b>	<b>12.23</b>	<b>35.70</b>	<b>39.70</b>	<b>17.40</b>
Union member	19.88	20.29	17.31	36.10	38.80	19.40
Union coverage*	19.84	20.27	17.16	36.20	38.90	19.30
Not a union member**	15.92	17.22	10.60	35.50	40.10	16.80
<b>Men</b>	<b>18.95</b>	<b>19.81</b>	<b>11.39</b>	<b>38.40</b>	<b>40.90</b>	<b>16.40</b>
Union member	20.91	21.23	16.19	38.50	39.80	18.40
Union coverage*	20.90	21.23	16.02	38.50	39.90	18.30
Not a union member**	18.00	19.07	10.18	38.40	41.50	15.90
<b>Women</b>	<b>15.29</b>	<b>16.24</b>	<b>12.59</b>	<b>32.80</b>	<b>38.10</b>	<b>17.90</b>
Union member	18.74	19.04	17.66	33.50	37.40	19.70
Union coverage*	18.65	18.97	17.53	33.50	37.50	19.70
Not a union member**	13.75	14.89	10.78	32.50	38.30	17.20
<b>Atlantic</b>	<b>14.25</b>	<b>15.04</b>	<b>10.01</b>	<b>36.80</b>	<b>40.30</b>	<b>17.40</b>
Union member	18.07	18.26	16.19	37.70	39.40	20.30
Union coverage*	18.04	18.24	15.99	37.60	39.40	20.00
Not a union member**	12.52	13.40	8.66	36.40	40.80	16.80
<b>Quebec</b>	<b>16.59</b>	<b>17.38</b>	<b>12.86</b>	<b>35.00</b>	<b>38.60</b>	<b>18.00</b>
Union member	19.07	19.27	17.89	35.50	38.00	20.00
Union coverage*	19.00	19.21	17.68	35.60	38.10	20.00
Not a union member**	14.95	16.04	10.64	34.60	39.10	17.10
<b>Ontario</b>	<b>18.16</b>	<b>19.46</b>	<b>11.95</b>	<b>35.90</b>	<b>39.90</b>	<b>17.10</b>
Union member	20.74	21.37	16.49	36.60	39.30	18.90
Union coverage*	20.72	21.37	16.38	36.70	39.30	18.80
Not a union member**	17.17	18.66	10.79	35.60	40.10	16.70
<b>Prairies</b>	<b>16.39</b>	<b>17.48</b>	<b>11.54</b>	<b>36.30</b>	<b>40.60</b>	<b>17.40</b>
Union member	18.88	19.37	16.20	36.20	39.30	19.30
Union coverage*	18.94	19.45	16.15	36.30	39.40	19.20
Not a union member**	15.34	16.63	10.04	36.40	41.10	16.80
<b>British Columbia</b>	<b>17.93</b>	<b>18.99</b>	<b>13.80</b>	<b>34.80</b>	<b>39.30</b>	<b>17.40</b>
Union member	21.43	21.86	19.30	35.30	38.60	19.20
Union coverage*	21.38	21.83	19.18	35.40	38.70	19.20
Not a union member**	16.06	17.35	11.61	34.50	39.70	16.70

Source: Labour Force Survey

\* Union members and persons who are not union members, but who are covered by collective agreements (for example, some religious group members).

\*\* Workers who are neither union members nor covered by collective agreements.

Whereas wage gains in contract settlements in 2000 trailed the rate of inflation, in 2001 they surpassed it. For the first quarter of 2002, wage gains averaged 2.9%—again higher than the inflation rate (1.5%).

Wage gains in the private sector exceeded those in the public sector every year during the 1990s, but in 2000, 2001 and the first quarter of 2002 the picture was reversed.

Annual statistics on strikes, lockouts and person-days lost are affected by several factors, including collective bargaining timetables, size of the unions involved, strike

durations, and the state of the economy. The number of collective agreements up for renewal in a year determines the potential for industrial disputes. Union size and strike duration determine the number of person-days lost in the event of a strike. The state of the economy influences the likelihood of an industrial dispute, given that one is legally possible.

The estimated work time lost through strikes and lockouts rose from 0.05% in 2000 to 0.07% in 2001. However, these figures are only one-sixth the levels of 20 years earlier (1980 and 1981).

### Major wage settlements, inflation and labour disputes

Year	Average annual increase in base wage rates*			Annual change in consumer price index*	Labour disputes and time lost			
	Public sector employees**	Private sector employees**	Total employees		Strikes and lockouts	Workers involved	Person-days not worked	Proportion of estimated working time
	%	%	%			'000	'000	%
1980	10.9	11.7	11.1	10.1	1,028	439	9,130	0.37
1981	13.1	12.6	13.0	12.4	1,049	341	8,850	0.35
1982	10.4	9.5	10.2	10.9	679	464	5,702	0.23
1983	4.6	5.5	4.8	5.8	645	329	4,441	0.18
1984	3.9	3.2	3.6	4.3	716	187	3,883	0.15
1985	3.8	3.3	3.7	4.0	829	162	3,126	0.12
1986	3.6	3.0	3.4	4.1	748	484	7,151	0.27
1987	4.1	3.8	4.0	4.4	668	582	3,810	0.14
1988	4.0	5.0	4.4	4.0	548	207	4,901	0.17
1989	5.2	5.2	5.2	5.0	627	445	3,701	0.13
1990	5.6	5.7	5.6	4.8	579	270	5,079	0.17
1991	3.4	4.4	3.6	5.6	463	253	2,516	0.09
1992	2.0	2.6	2.1	1.5	404	150	2,110	0.07
1993	0.6	0.8	0.7	1.8	381	102	1,517	0.05
1994	...	1.2	0.3	0.2	374	81	1,607	0.06
1995	0.6	1.4	0.9	2.2	328	149	1,583	0.05
1996	0.5	1.7	0.9	1.6	330	282	3,352	0.11
1997	1.1	1.8	1.5	1.6	284	258	3,610	0.12
1998	1.6	1.9	1.7	0.9	381	244	2,444	0.08
1999	1.9	2.7	2.2	1.7	413	159	2,446	0.08
2000	2.5	2.4	2.5	2.7	377	144	1,662	0.05
2001	3.2	2.9	3.1	2.6	379	224	2,240	0.07
2002	3.1	2.0	2.9	1.5				

Sources: Statistics Canada, Prices Division; Human Resources Development Canada, Workplace Information Directorate

Note: Major wage settlements refer to agreements involving 500 or more employees.

\* 2002 data refer to January to March only.

\*\* Public sector employees are those working for government departments or agencies; crown corporations; or publicly funded schools, hospitals, or other institutions. Private sector employees are all other wage and salary earners.



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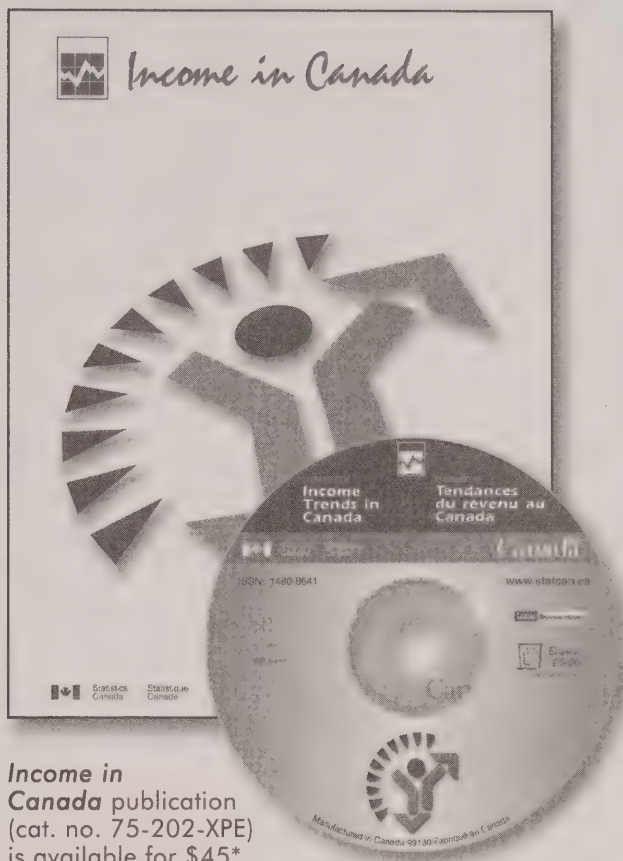
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*Wendy Pyper and Phil Giles*

Using the longitudinal Survey of Labour and Income Dynamics, this article looks at older Canadian workers who lost or left a career job, and their subsequent labour market activity over two years. Several characteristics including age, sex, and class of worker, as well as the voluntary and involuntary nature of the job loss are examined.

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*Tony Fang and Anil Verma*

How much more do unionized workers in Canada earn than non-unionized workers? Since the 1970s, the wage differential has varied between 10 and 25%. This article investigates differences between union and non-union wages using the Workplace and Employee Survey.

### 24 Family spending power

*Jamie Carson*

Is income a good measure of economic well-being? The fortunes of families differ according to their size and the demands on their income. To get a better picture of spending power and to compare families of different types, it is necessary to look at income pooling and economies of scale. This is done with an 'equivalence scale.'

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*René Morissette*

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## 41 Earnings over time

*Charles Beach, Ross Finnie and David Gray*

An examination of earnings between 1982 and 1997 to assess the extent to which changes in the variance of wages and salaries over time were caused by permanent or transitory factors.

## 43 Income and wealth

*Baudelaire Augustin and Dimitri Sanga*

Income and wealth may be intimately related, but they are not synonymous. Some families with a high income have a low net worth. Conversely, some with a low income are quite wealthy. This article explores some of the factors influencing the relationship between income and wealth.

## 48 Working smarter

*Ted Wannell and Jennifer Ali*

Do technology implementers spend more on training? Do they have more highly educated workforces? Are highly educated workers more likely to be found in implementing workplaces? Are recently hired workers in implementing workplaces better educated than longer-tenured co-workers?

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# Forum

■ According to a somewhat lurid expression, there are a number of ways to skin a cat. If the particular cat to be skinned is the change in an economic phenomenon over time, the articles in this issue represent the range of tools in the skinner's kit.

The most tried and trusted such tool is time series analysis—repeated cross-sections. Using two or more incidents of a survey (or other data source), the analyst seeks to discern trends or changing patterns in an aggregate phenomenon over some period. For example, Jamie Carson in *Family spending power* documents the changing mosaic of family living arrangements and spending power over a 20-year period. Tony Fang and Anil Verma's article on the *Union wage premium* demonstrates that repeated cross-sections need not be limited to descriptive statistics. Using a number of data sources, they fit regression models to estimate changes in the conditional union wage premium in the past two decades.

Increasingly, social scientists and policy makers are concerned with trends and changes at the individual, rather than aggregate level. These issues require data sources that track individuals over time. *Approaching retirement* by Wendy Pyper and Phil Giles explores the paths that lead from career jobs to retirement. The study makes use of the Survey of Labour and Income Dynamics, which features six annual interviews with the same panel of respondents.

But surveys are not the only way to track people over time. Administrative sources, such as tax records, can provide a cost-effective basis for research as long as the absolute confidentiality of the information can be ensured. Charles Beach, Ross Finnie and David Gray generally conclude in *Earnings over time* that earnings

were more stable but less equal when comparing the 1990s to the 1980s. Their study uses the Longitudinal Administrative Database, which provides the income history and family structure of a large sample of Canadians.

Both panel surveys and administrative data have some shortcomings. Panel surveys are expensive to run and usually contain costs by limiting sample size and/or time horizons. Administrative sources, as a rule, have very large sample sizes but are limited to the information collected to administer a program. So blended solutions are sometimes necessary.

René Morissette uses an artificial panel approach to examine changes in *Cumulative earnings among young workers*. This approach uses cross-sectional surveys to identify panels of like individuals that can be linked across time by reference to their year of birth. In essence, a bundle of characteristics, rather than individuals, is tracked over time.

Of course this sample of 'longitudinal' techniques is not exhaustive. Retrospective surveys, time-use diaries and direct observation are some other methods used to track people, institutions and transactions over time.

Selecting among the available data and techniques in the skinner's toolbox is one of the most important steps in planning a research project since these choices inevitably shape the final product.

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## Perspectives

**We welcome your views** on articles and other items that have appeared in *Perspectives*. Additional insights on the data are also welcome, but to be considered for publication, communications should be factual and analytical. We encourage readers to inform us about their current research projects, new publications, data sources, and upcoming events relating to labour and income.

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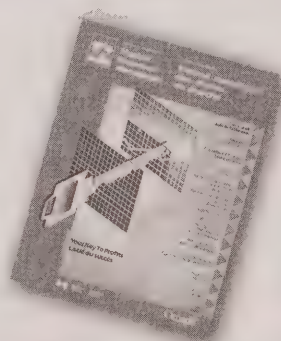
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# Highlights

## *In this issue*

### ■ Approaching retirement ... p. 9

- Just under half of workers in their 50s and 60s who ended a full-time career job between 1993 and 1997 were working 24 months later. Three in 10 began a new full-time job, while 1 in 10 began a part-time job. Among those aged 50 to 54, almost 60% began a new full-time job, while 26% were still not working after two years. Among those aged 55 to 59, less than one-third began a new full-time job, and just over half were not working two years later.
- Transition patterns differed between employees and the self-employed: 55% of those ending a full-time, paid job remained without a job for two years, compared with 37% of those ending a full-time, self-employed job. Almost half of those ending a self-employed job began a new full-time job within 24 months.
- Most workers (62%) who ended a career job voluntarily did not work again during the following two years, while only 21% started a new full-time job. For those who left involuntarily, the proportions were reversed, with most (61%) finding a new full-time job. Almost one-third of workers who claimed to have retired from their career job returned to work within two years.
- For workers who found a new job within 24 months, the average jobless period was 5.6 months. The amount of time without a job varied by age group, with older age groups taking longer between jobs. The self-employed spent less time without a job—3 months compared with roughly 6 months for employees. Those who 'retired' and then began a new job took more time (7 months) between jobs, on average, than those leaving for other reasons.

### ■ Union wage premium ... p. 17

- In 1999, the average unionized worker earned \$20.36 per hour while the average non-unionized worker earned \$17.82, an overall union wage premium of 14.3%. After adjusting for employee and workplace characteristics, the differential was reduced to 7.7%.
- Differences between unionized and non-unionized workers may explain part of the wage differential. For example, unionized workers were somewhat better educated: more had trade school education (15% versus 11%) or undergraduate or higher education (21% versus 18%). They also had longer job tenure (9 versus 6 years).
- Workplace characteristics also differed. Unionized workers were more likely to be in primary manufacturing, communications and utilities, or education and health-care industries. They were also more likely to be found in larger firms (45% versus 11%).
- The greatest adjusted union wage premium was in the construction industry. Similarly, construction occupations showed the greatest adjusted wage premium (15%). Management and professional occupations had the smallest differential (-1%), followed by the financial, administrative and clerical group (2%).
- The adjusted union wage premium was higher than the average in British Columbia (14%), the Atlantic provinces (12%), Manitoba and Saskatchewan (9%), and Alberta (8%). Quebec, the most unionized region in Canada, showed a modest gap of 5%; Ontario, a relatively less unionized province, had a premium of 6%, somewhat below the national average.



## ■ Family spending power ... p. 24

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- Families with two or more adults have unadjusted incomes above the overall average because they have more potential earners. On the other hand, unattached individuals and lone parents have after-tax income averages just over half the overall average. Adjusting incomes to account for family size and composition—using an ‘equivalence scale’—changes the picture.
- Based on the adjusted figures, the average family had the equivalent spending power of an unattached individual with \$26,900 in after-tax income in 1999. Adjusted incomes fall into a narrower range, so the gap between the highest and lowest 20% falls from \$8 (unadjusted) to \$5 for every \$1. This smaller gap indicates a tighter distribution when incomes are adjusted for family size.
- Many demographic trends contributed to changes in the size and type of families between 1980 and 1999. The family with two parents and children saw a decline, while other forms of household organization increased. The average family size in 1999 was 10% smaller than in 1980.

## ■ Cumulative earnings among young workers ... p. 33

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- Between 1988 and 1999, Canadian-born men aged 26 to 35 in 1999 cumulated \$246,500 in wages and salaries (in 1999 dollars), fully \$40,000 less than their counterparts between 1973 and 1984. Young immigrant men fared worse. Their cumulative wages and salaries fell by more than \$75,000 between the 1973 to 1984 and 1988 to 1999 periods.
- Canadian-born women of the same age amassed \$172,000 between 1988 and 1999, \$20,000 more than between 1973 and 1984. Cumulative wages and salaries of young immigrant women remained virtually unchanged at \$176,000.

- The decline in cumulative earnings (wages and salaries plus self-employment earnings) of young men is likely the major factor underlying the decline in median wealth of young families. Median wealth of young Canadian-born and immigrant families (aged 26 to 35) fell by \$8,000 and \$23,000, respectively. The substantial decline in cumulative earnings of young immigrants was associated with a decline in homeownership among these families.
- Student debt played only a minor role. Between 1982 and 1995, the average amount owed at graduation by male bachelor's graduates increased by about \$4,000 (in 1999 dollars). This is less than one-tenth the decline in cumulative earnings of young Canadian-born men between the 1973 to 1984 and 1988 to 1999 periods.

## ■ Earnings over time ... p. 41

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- The overall variation of age-adjusted earnings among men increased substantially (13%) between the periods 1982 to 1989 and 1990 to 1997. In comparison, the increase among women was quite modest (1.5%).

## ■ Income and wealth ... p. 43

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- Persons under 25 are the poorest in terms of both net worth (\$1,800) and after-tax income (\$12,600), likely because most of them are students or young unskilled workers.
- Debt peaks in the 35 to 49 age group and then falls rapidly, helping net worth to increase rapidly. Between the ages 25 to 34 and 35 to 49, income rose from \$33,000 to \$42,100 (+28%) and net worth more than tripled, from \$28,100 to \$86,500 (+208%).
- After those under 25, those 65 and over are the poorest in terms of after-tax income. Income in this group fell to \$24,400 from \$39,300 in the 50 to 64 age group. On the other hand, debts are almost non-existent.

## ■ Working smarter

... p. 48

- Computer use on the job has expanded very rapidly, doubling during the 1990s from one-third to two-thirds of all workers.
- Companies that invest heavily in computer technology generally have employees who are more highly educated than workers in other businesses. The link between education and computer technologies is strongest at the highest levels of educational attainment and computer investments.
- Investments in computer technologies also coincided with the hiring of highly educated new employees. New hires in these businesses had higher levels of education than both their longer serving co-workers and new hires in other businesses.
- Highly educated workers are more self-reliant in computer-related learning; 57% of university graduates claimed computer self-learning was their most important learning method. The comparable rate for other workers was 40%.

## ■ What's new

... p. 61

### ■ Just released

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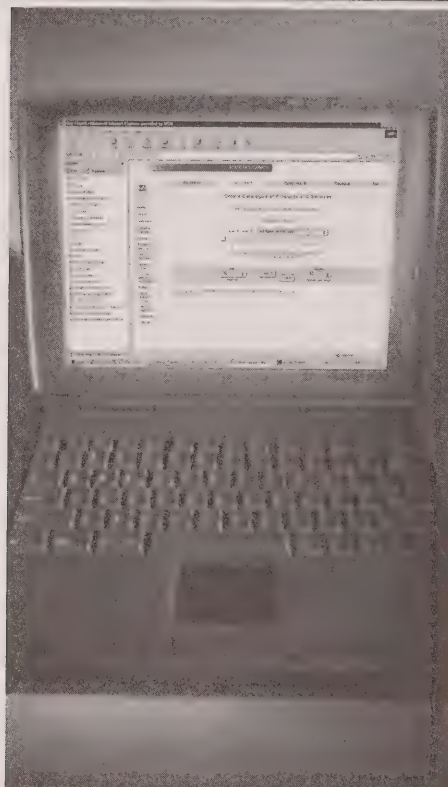
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### Perspectives

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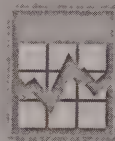
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# Approaching retirement

Wendy Pyper and Philip Giles

*When will I retire? Will I have enough money to live and do the things I want?*

*How will I spend my time? Will I travel? Take up new hobbies? Will I be content not working?*

*Should I find a part-time job to help pass the time—or to help pay the bills?*

AS THE BABY BOOM GENERATION approaches retirement, more and more older workers will be making decisions that will affect the labour market now and for many years to come. Today's younger workers will soon be forced to deal with the effects of these decisions. If the majority of older workers stop working abruptly (the traditional retirement route), labour demand will jump sharply to replace them. If they delay retirement and continue to work, jobs or career advancement may be less available for younger workers. Are there other possibilities? Could workers approaching retirement slow down—continuing to work but cutting back on their hours? Could they start their own business and take advantage of a more flexible work schedule? What could employers offer to entice their experienced employees to remain, sharing their knowledge with younger employees?

Using the longitudinal Survey of Labour and Income Dynamics (SLID), this article looks at the transitions of older Canadian workers by several characteristics including age, sex, and class of worker. It also examines the voluntary and involuntary nature of job loss.

## The aging population and labour force

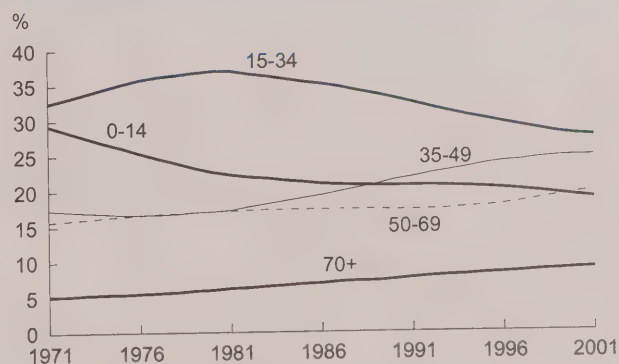
The oldest baby boomers are now in their early 50s. The proportion of the population in the 50 to 69 age group remained fairly steady from the mid-1970s to the mid-1990s, but since then, it has increased to

roughly 20% (Chart A). In fact, the proportions for each age group over 35 have increased, while both groups below 35 have declined.

The participation of older men in the labour market fell from the mid-1970s to the mid-1990s. However, by the late 1990s, the trend had levelled off or reversed slightly (Chart B). The pattern can be attributed partially to economic conditions (Sunter 2001). Women in their 50s saw increased participation rates over the period, reflecting the increased participation of younger women in the labour market starting in the 1970s. As these women entered the older age groups (replacing the older cohort), the participation rates increased.

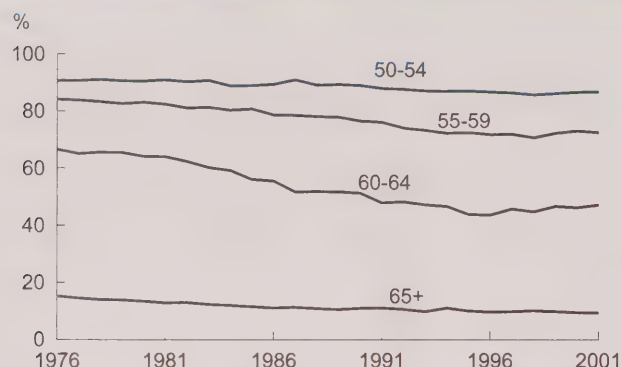
While these measures are important for understanding the labour market situation of older workers, they do not tell how much time older workers spend in the

**Chart A: The proportion of older people has increased.**

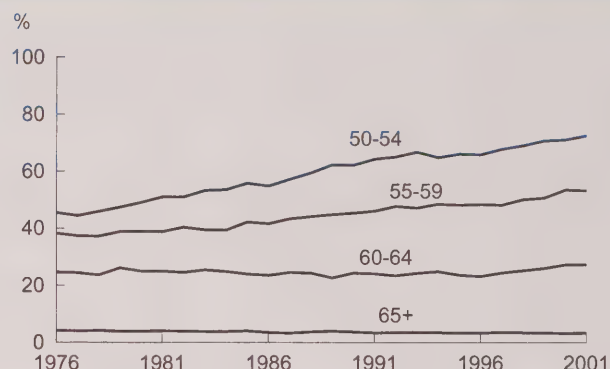


Source: Census of Population

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**Chart B: The participation rate has been generally falling for older men ...**

... but rising for older women.



Source: Labour Force Survey

labour market. One clue is provided by the ratio of part-time employment to total employment (Chart C). For both men and women, older age groups have higher incidences of part-time work, and these have increased for each age group since 1976. The rate is consistently higher for women than for men. However, these overall trends do not shed light on how individuals move into or out of the labour market. For this, longitudinal data must be used.

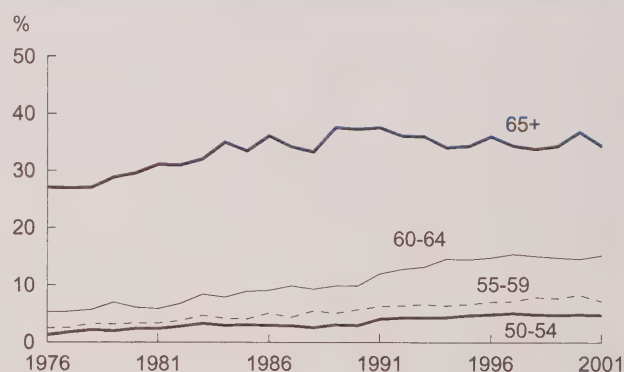
### Transitions of older Canadian workers

This study uses SLID data from 1993 to 1999 (see *Data source and definitions*). The population chosen comprised persons aged 50 to 67 with a full-time career job (one held for at least eight years) that ended within the five-year period 1993 to 1997. These persons were studied for 24 months following the end of a career job for re-entry into employment.

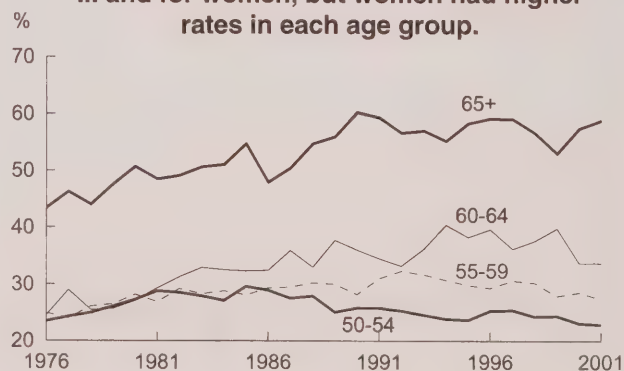
#### Ending a career job is not always complete retirement

Just over half of older workers who ended a full-time career job were not working 24 months later, while almost one-third had begun a new full-time job (Table 1). A smaller, but still significant portion began a part-time job (10%). The remainder consisted of various types of non-response.

Partly, these patterns may arise because of the age of the workers in this study—50 to 67—so perhaps the results are influenced by the younger portion of this population. To some extent, this is true. For the

**Chart C: The incidence of part-time employment increased with age for men ...**

... and for women, but women had higher rates in each age group.



Source: Labour Force Survey



**Table 1: Persons whose career job ended, by age, sex, and class of worker**

	Total	Job status over the following 24 months			
		No job	Full-time	Part-time	Don't know*
	'000	%			
<b>Both sexes</b>	<b>656</b>	<b>52</b>	<b>31</b>	<b>10</b>	<b>7</b>
Men	436	49	36	9	7
Women	221	59	21	12	F
<b>Age</b>					
50 to 54	220	26	58	11	F
55 to 59	194	54	27	12	F
60 to 64	164	73	11 <sup>E</sup>	F	F
65 to 67	78	79	F	F	F
<b>Employees</b>	<b>566</b>	<b>55</b>	<b>28</b>	<b>10</b>	<b>7</b>
Men	370	51	32	10	7
Women	196	63	20	9 <sup>E</sup>	F
<b>Self-employed</b>	<b>90</b>	<b>37</b>	<b>47</b>	<b>F</b>	<b>F</b>
Men	66	39	54	F	F
Women	25	F	F	F	F

Source: Survey of Labour and Income Dynamics, 1993-1997

\* Includes various types of non-response.

youngest age group (50 to 54), the majority of those ending a full-time career job began a new full-time job within two years (58%). These changes may have been part of their career progression. However, another substantial proportion (26%) still had no job.

For those aged 55 to 59, less than a third left a career job to begin another full-time job. Most of them (54%) did not work again within the two years, suggesting that they could be early retirees. For both age groups under 60, around 11% switched from a full-time career job to a part-time job. It appears that these workers are phasing out of employment more gradually.

Women were more likely than men to remain without a job—almost 60%. Almost half of the men remained jobless, while one-third began a new full-time job. Around 10% of both men and women

### Data source and definitions

The Survey of Labour and Income Dynamics (SLID) is a longitudinal household survey that began in 1993. Every three years, a new panel of approximately 15,000 households enters the survey and is surveyed for six years.

This study examined all main jobs held by persons aged 50 to 67<sup>1</sup> that ended between 1993 and 1997. Some jobs had invalid date information, which prohibited assignment of a job duration. These records were dropped. Job duration was determined, and all jobs held for less than eight years were dropped. Jobs held for eight years or longer were classified as career jobs. All jobs held full time at the time of the job loss were selected as the population under study and observed for a period of 24 months following the end of the career job. The first job obtained during these 24 months was categorized as the next job held.

Each year, between 2.4 and 2.9 million jobs were held as main jobs by workers aged 50 to 67, and of these jobs roughly 40% had been held for less than eight years. The

switched to part-time work, suggesting that easing into retirement is a real phenomenon.<sup>2</sup>

Transition patterns differed between employees and the self-employed. Over half (55%) of those ending full-time paid jobs remained without a job for two years, compared with 37% of those ending a full-time self-employed job. This suggests a stronger attachment to employment for the self-employed (which may be due partly to their ability to have more control over their hours of work). Many (47%) of those ending a self-employed job began a new full-time job.<sup>3</sup>

remaining 1.4 to 1.7 million had been held for eight years or more, and roughly 10% (between 121,000 to 202,000) of these ended each year. Once pooled, this represents 763,000 jobs that ended between 1993 and 1997, of which 656,000 were full-time at the time of the job loss. These are the jobs used in this study—full-time career jobs that ended within the five-year period from 1993 to 1997.

Since this study examines labour market transitions of older workers, the population selected included those as young as 50. Although too young for 'traditional' retirement, it is important to examine what people this age are doing. Gower (1997) found that 10% of those who retired between 1991 and 1995 were between 50 and 54. While the term 'retired' does not necessarily mean the end of work, it does imply that these workers are making some changes to their employment situation that are generally associated with older workers.

**Main job:** the job with the most scheduled hours (usual hours) in the month.



### What role does choice play?

SLID asks the reason a job ended, thereby allowing a distinction to be made between voluntary and involuntary job loss. The majority of career jobs ended voluntarily, ranging from almost 60% for those aged 50 to 54 to over 80% for those 55 and older (Chart D). Retirement was given as the reason for ending the majority of jobs, with higher proportions in the older age groups. Even for the 50 to 54 age group, one-third of career jobs ended in retirement. Although the majority of this youngest group started a new full-time job within two years, a substantial portion claimed to have retired.

The majority (62%) of workers who ended a career job voluntarily did not work again during the following two years, while 21% started a new full-time job (Table 2). For those who left involuntarily, the figures were 21% and 61% respectively. This indicates that choice plays a role in transitions.

For those who ended their job voluntarily, different patterns exist across age groups. Of those 50 to 54, almost 40% did not have a job after two years; however, the majority found other employment. This contrasts with older age groups where most who left voluntarily remained without a job. While the vast majority of older workers who listed retirement as the reason for ending their career job remained without a job for two years, almost one-third returned to employment. This illustrates that 'retirement' and 'not working' are not considered synonymous.

### How long before people started a new job?

Although the transition tables show how many people began a new job following the end of a career job, they do not indicate how much time elapsed between

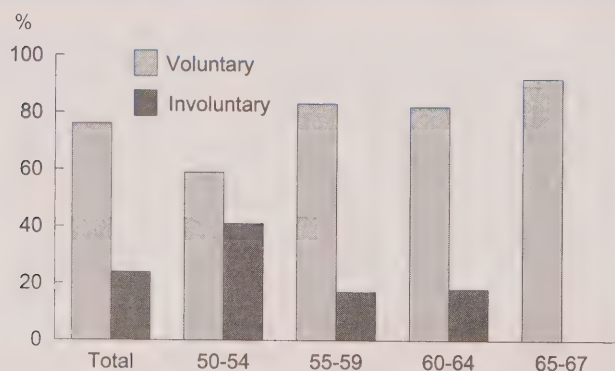
### The American experience

Quinn, Burkhauser and Myers (1990) examined the exit patterns of older Americans from career jobs using the Retirement History Study. This longitudinal survey followed 58 to 63 year-olds over a 10-year period. The sample consisted of nearly 2,100 respondents in 1969 who ended a career job (at least 35 hours per week and held for 10 years or more). The authors chose to examine exits from career jobs because of the importance of jobs with long durations (nearly 80% of respondents had at least 10 years experience in their longest job).

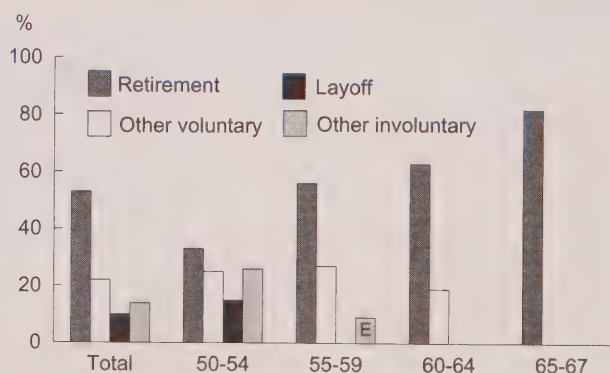
They found that 27% of the men returned to the labour market within the following four years. These workers either found a new full-time (12%) or part-time (10%) job, or reduced the hours worked at their career job to below 20 per week (5%). A similar pattern existed for non-married women, except that more women reduced their hours at their career job.

Exit patterns for self-employed men were very different, with half of them remaining employed. Of those who continued to work, 25% reduced the hours in their career job—the most common kind of transition. The remainder were evenly split between beginning a new full- or part-time job. Many characteristics were found to be related to the transition process. Health and age of the worker played important roles, as did industry, occupation, pension eligibility, and wage rate of the career job.

**Chart D: Most jobs ended voluntarily, especially for those 55 and older ...**



**... and 'retirement' was a reason for all age groups, even the youngest.**



Source: Survey of Labour and Income Dynamics, 1993-1997

**Table 2: Persons whose career job ended, by type of job separation**

	Total	Job status over the following 24 months			
		No job	Full-time	Part-time	Don't know*
	'000	%			
<b>Voluntary separation</b>	<b>496</b>	<b>62</b>	<b>21</b>	<b>9</b>	<b>7</b>
50 to 54	129	39	43	F	F
55 to 59	161	59	22	F	F
60 to 64	134	80	F	F	F
65 to 67	72	80	F	F	F
Men	327	59	24	10	7 <sup>E</sup>
Women	169	69	15	F	F
Employees	433	65	18	10	8
Self-employed	63	45	45	F	F
Retirement	349	70	14	10	F
Other	147	44	38	F	F
<b>Involuntary separation</b>	<b>160</b>	<b>21</b>	<b>61</b>	<b>F</b>	<b>F</b>
50 to 54	91	F	78	F	F
55 to 59	33	F	50 <sup>E</sup>	F	F
60 to 64	30	F	F	F	F
65 to 67	F	F	F	F	F
Men	108	18 <sup>E</sup>	70	F	F
Women	52	F	40 <sup>E</sup>	F	F
Employees	133	22	62	F	F
Self-employed	27	F	F	F	F
Layoff	66	F	66	F	F
Other	94	21 <sup>E</sup>	57	F	F

Source: Survey of Labour and Income Dynamics, 1993-1997

\* Includes various types of non-response.

work. Among those not employed after 12 months, the vast majority remained without work; only 1 in 20 began a new full-time job.

One-third of those who started another job within 24 months of ending a full-time career job spent less than a month without a job (Chart E). More men spent less time between jobs, suggesting that they have a stronger attachment to work. Since the population in this study includes people as young as 50, the short duration without a job could partly be explained by job-switching, which is common with younger workers. In fact, 32% of those aged 50 to 54 who went from a full-time career job to another job spent less than one month without a job, compared with 40% of those aged 55 to 59. For the younger age group, the difference may partly reflect the voluntary or involuntary ending of the job.

Older workers who leave their job involuntarily will likely find it more difficult—and may therefore take longer—to find a new job. It is also possible that older workers who

jobs. The date information provided by SLID shows how long workers spent without a job according to their transition. One in 10 workers (11%) who ended a full-time career job began a new full-time job within one month—a very temporary jobless situation (Table 3). In fact, these people may not have been without a job at all, moving directly from one job to the next. Of those not working after one month, 1 in 5 began a new full-time job within 1 to 12 months, while 1 in 17 (6%) began part-time

**Table 3: Marginal probabilities of transitions from a career job**

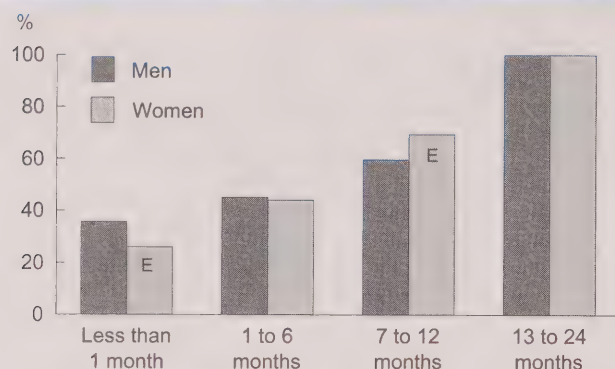
	At start of period	Total	No job	Full-time	Part-time	Don't know*
Months after career job ended	'000	%				
Less than 1 month	656	100	86	11	F	F
1-12 months	565	100	74	19	6	F
Over 12 months	418	100	91	5	F	F
Don't know	380	100	90	0	0	10
No job	343	100	100	0	0	0

Source: Survey of Labour and Income Dynamics, 1993-1997

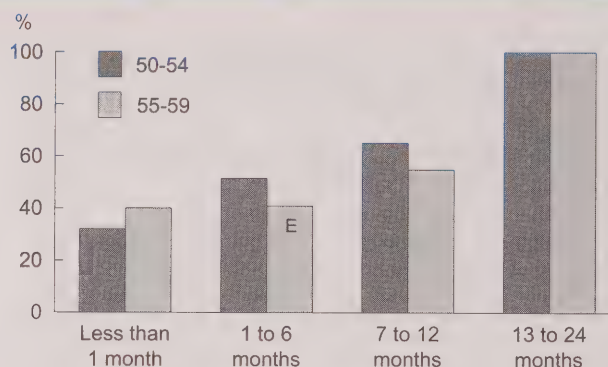
\* Includes various types of non-response.



**Chart E: Men were more likely to return to work sooner ...**



**... and more 55 to 59 year-olds returned very quickly.**



Source: Survey of Labour and Income Dynamics, 1993-1997

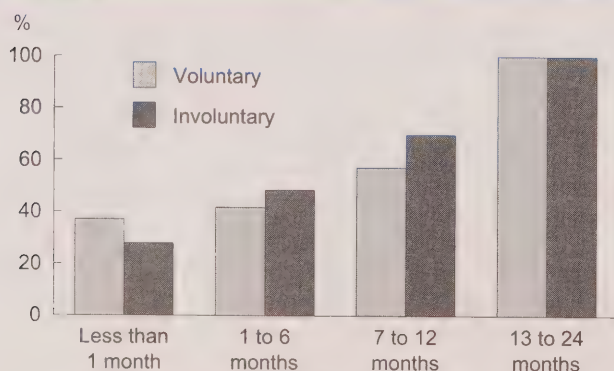
leave their job voluntarily may not be quick to find a new job either, since their original intention may have been to withdraw from the labour market completely. In fact, of those who left their job voluntarily, 37% returned to work within a month, compared with 28% of those who left involuntarily (Chart F). More of those whose job ended involuntarily took longer before starting a new job.

#### Oldest workers spent more time without a job

Another way to look at jobless duration is the average length of time spent without a job. For workers who found a new job within 24 months, the average job-

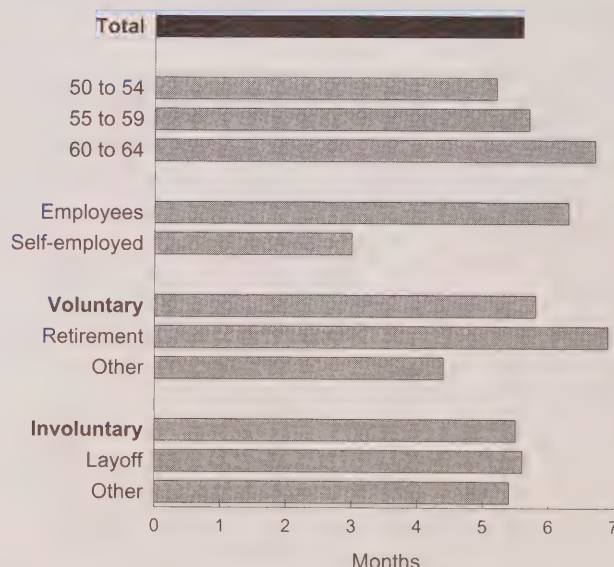
less period was 5.6 months (Chart G). The amount of time increased with age, ranging from 5 months for those 50 to 54 to almost 7 months for those 60 to 64. On average, the self-employed spent less time without a job than their salaried counterparts. The average number of months without a job was twice as high

**Chart F: Many of those who left voluntarily started a new job very quickly.**



Source: Survey of Labour and Income Dynamics, 1993-1997

**Chart G: Older persons spent more time without a job; the self-employed spent less.**



Source: Survey of Labour and Income Dynamics, 1993-1997



## Defining retirement

'Retirement' is a commonly used term that has many meanings (see Quinn, Burkhouser, and Myers, 1990, for an extensive review of the literature). Retirement could be indicated by the receipt of a public or private pension (Herz, 1995; Purcell, 2000). It could also be signalled by a reduction in work hours below a certain level, either an absolute number or a percentage of previously worked hours (Honig and Hanoch, 1985; Reimers and Honig, 1989). In some cases, it could be a self-determined condition, as in a response to a survey question (Gustman and Steinmeier, 1983). As well, it might mean a complete withdrawal from the labour market.

Many studies have found that retirement is not always a well-defined event, but instead a process. Some workers may retire from their job, begin to draw their pension, and yet work part time—either to supplement their pension or to pass the time. Some may retire and start their own business, taking advantage of the flexibility in work arrangements that comes with some businesses. Some may return to the labour market after a period of retirement. And there are also those who continue working, simply moving to a new full-time job. (Although this type of movement is not a retirement *per se*, it is nonetheless a transition and is included in discussions of retirement in many studies.)

for employees as for the self-employed (6.3 months compared with 3 months). For those who stated retirement as the reason their job ended, the average jobless period was 7 months, compared with 4 months for those stating other voluntary reasons. Those who retired and began a new job took on average more time between jobs than those leaving for any other reason.

## Conclusion

As baby boomers approach the traditional retirement age and begin the retirement process, it is important to understand the paths they are taking. The face of the future labour market will depend partly on what older workers do in their final years at work. With their departure could go their knowledge, so it is important to ensure a transfer to the next generation. Many studies have shown that retirement does not necessarily mean an abrupt end to employment—the transition from work to full retirement can be interspersed with periods of employment. If older workers were to keep working, even at a reduced level, younger workers would have the opportunity to acquire their skills and knowledge. To this end, employers may consider implementing flexible work schedules in the form of reduced hours, part-year employment, or job-sharing with their replacements.

Almost half of older workers who ended a full-time career job between 1993 and 1997 began a new job within two years. The majority of these found a new full-time job, and a smaller but significant portion (10%) switched to part-time employment, suggesting that easing into retirement is a real phenomenon. Differences exist between age groups, but a significant number of the youngest group did not work again, and a significant number in the older groups returned to work. More self-employed returned to work, and returned sooner than salaried workers. Those who left their job involuntarily were more likely than those who left voluntarily to start a new full-time job, but a substantial proportion of those who claimed to have retired began to work again, suggesting that retirement and not working are not synonymous.

As more years of longitudinal data become available, they will provide more detail on what is happening in Canada. As the aging workforce changes the nature of the labour market, workplace policies may be modified to allow more flexibility for older people to work.

## Deserving further study

This paper gives only a first glimpse at labour market transitions made by older workers. Unfortunately, the sample size of older workers in SLID does not support the desired depth of analysis. It would also be interesting to look at the job search activities of older workers. To do this, transitions between the three categories of labour force status (employed, unemployed, and not in the labour force) could be examined. Ideally, further breakdowns would be made, looking at transitions into self-employed versus paid jobs and examining the flexibility found in self-employment. The provision of benefits such as private health care coverage could be examined to see if workers with benefits are less likely to end their career job. Pension coverage could be looked at as well to determine if workers are supplementing their pensions with additional income. Changes in the number of hours worked could be examined to observe possible shifts to fewer hours of work in the career job. How does marital situation affect workers—do couples make joint decisions regarding labour market transitions? What role does health play—are older workers switching to new jobs because the physical demands of their career job are too great? These are just some of the areas of interest that unfortunately cannot yet be examined.

## ■ Notes

1 Labour information for a period of two years following the job end is required to determine the transition, and since SLID does not ask the labour questions to those aged 70 or older, workers aged 68 and older must be excluded.

2 It would be interesting to look at changes in the hours of work of a career job to examine if workers are decreasing their hours of work within the career job. This may not be possible due to sample size.

3 Due to sample size, breakdown of the new job by class of worker was not possible.

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# Union wage premium

Tony Fang and Anil Verma

*Everyone 'knows' that unions raise wages.*

— Freeman and Medoff (1984, 43)

**H**OW MUCH MORE do unionized workers earn than non-unionized workers? Since the 1970s, the wage gap has varied between 10 and 25% in Canada (Renaud 1997) and between 21 and 32% in the U.S. (Freeman and Medoff 1984). However, since that time, wage differentials may have shifted in light of external pressures such as globalization, technological advancement, and demographic changes. Many changes have occurred in workplace practices, such as flexibility, employee involvement, and the adoption of technology. Since unionized and non-unionized workplaces are free to adopt innovations from each other, how they were implemented may also have contributed to shifts in wage differentials.

Some components of wage differences between the two groups of workers may persist because of union policies—for example, union insistence on standard wages with no variable pay component or seniority rules. But other differences may narrow or widen as union and non-union workplaces 'compete' with each other (or with a common foreign competitor) by adopting workplace innovations to enhance quality, productivity, safety, or other outcomes of interest.

This article investigates differences between union and non-union wages using data from the first Workplace and Employee Survey (WES). When compared with historical differences in wages, the results provide a dynamic view of wage differences between the two groups of workers (see *Data source*).

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## Union and non-union wages over time

In a perfectly free market, differences between union and non-union wages may not sustain themselves in the long run. However, in practice they do persist even though their magnitude may vary over time. There are at least two explanations for their persistence:

One way for unions to create a sustainable wage premium would be to organize all (or nearly all) the employers in a given industry. They could then 'take wages out of competition' by forcing all (or most of) the employers to pay the same wage.

Another explanation is the 'shock effect' hypothesis (Slichter 1941; Slichter, Healy and Livernash 1960). The arrival of unions in a workplace spurs management to

## Data source

Household surveys such as the Labour Force Survey (LFS), the Labour Market Activity Survey (LMAS), and the Survey of Labour and Income Dynamics (SLID) have been major sources of data on unionization (Lemieux 1993). However, research based on such data has not been able to control for the effect of firm characteristics—other than industry and firm size—on wage levels because of the lack of suitable data for more comprehensive analysis. The **Workplace and Employee Survey (WES)**, first conducted in 1999, offers the chance to examine the effect of workplace characteristics in addition to industry and firm size effects.

The sample used in this analysis was based on 23,540 employees in 5,733 workplaces in 1999. About 28% of the employees were either union members or covered by collective agreements. However, in workplaces with more than 50 employees, the rate rose to 46%. In larger workplaces (more than 100 employees), the proportion was almost identical (51% unionized, 49% not).

In the 1999 WES, the earnings reported are based on wages (or salary) before taxes as well as any other earnings (tips, commissions, bonuses, overtime pay) and other types of variable pay (profit-sharing, productivity bonuses, piecework) for the previous 12 months. WES allows respondents to report different bases of pay (hourly, daily, weekly, annually). All wages are expressed as an hourly rate.



adopt standard and formal procedures for a whole range of personnel activities such as hiring, promotion, record keeping, communication, and so on. By extension, therefore, unionized firms should be more efficient, given their use of formal systems of modern management. In contrast, non-union firms may engage in more ad hoc practices since no union is forcing management to be more systematic. Indeed, unionization is associated with lower turnover, both voluntary and involuntary (Freeman 1981, Brown and Medoff 1978, and Clark 1980).

Generally, wage differences are measured at a given point in time. They may persist, or they may narrow or widen. Spillovers may occur across the two groups. Some non-union employers may emulate union practices in wages and benefits (Foulkes 1980), while unionized employers may introduce employee involvement and flexible work designs fashioned after innovations in leading non-union firms (Kochan and Osterman 1994). In this dynamic view, differences between the two groups may be viewed as a series of leapfrogging rounds of workplace innovation (Verma 1984, 1985). Each group learns from the other and narrows the gap by adopting leading-edge innovations. Even as one group catches up, another round of innovations is set off.

As to historical context, the union wage differentials for selected years between 1984 and 1998 were estimated from various sources (Chart A). The data and

model used in the estimation are generally consistent across these years—with some limitations (see *Trends*).<sup>1</sup> The gap between union and non-union wages narrowed somewhat over time, from the high teens in the 1980s to the low teens in the 1990s. The narrowing was particularly evident in the later 1990s when most Canadian workplaces were finishing a dramatic wave of restructuring begun in the mid-1980s. The year 1990 is the only exception to the trend, when the wage gap was at an all-time high of 20%. This is not surprising, given that 1990 was a recession year, and the union effect on wages tends to be larger during recessions. Union wages are less sensitive than non-union wages to business cycles, partially because union workers have long-term wage contracts (Gunderson and Hyatt 2001). In 1990, average union wages increased \$0.85 per hour—far more than the non-union increase of \$0.30 per hour.

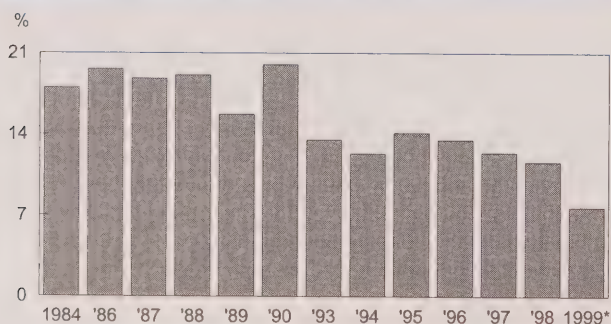
### Trends

The historical trends use data drawn from various Statistics Canada surveys that cover most of the 1980s and 1990s: the Survey of Union Membership (1984), the Labour Market Activity Survey (1986-1990), the Survey of Labour and Income Dynamics (1993-1997), the Labour Force Survey (1997, 1998), and the Workplace and Employee Survey (WES) (1999).

Union status is defined as being either a union member or covered by a collective bargaining agreement, consistent with WES. The hourly wage is taken from the main job in December or the end of the reference year, and is based on usual wage or salary (rather than total compensation as in WES) and total hours of work.

When other factors (personal, job and firm characteristics) are accounted for, the trends of adjusted union wage premiums over time start to emerge. The model specifications are uniform across all the surveys except for WES. The factors deemed to affect wages include age (4 categories), education (university degree), job tenure (5 categories), part-time status, region (9 categories), industry (50 categories, excluding fishing and trapping, and public administration to be comparable with WES), and occupation (7 categories). In the 1980s, adjusted union wage premiums were in the high teens (16% to 20%), but they dropped to the lower teens in the 1990s (12% to 14%).

**Chart A: The adjusted union wage premium has dropped since the mid-1980s.**



Sources: 1984, Survey of Union Membership  
 1986-1990, Labour Market Activity Survey  
 1993-1996, Survey of Labour and Income Dynamics  
 1997-1998, Labour Force Survey  
 1999, Workplace and Employee Survey

\* The model specification differed from previous years.

However, these union wage premium estimates should be viewed with caution because of differences between surveys in both data and model specifications. For example, the industry code is probably more accurate in WES because it is derived from a business profile rather than employee responses.

## Results

In 1999, the average unionized worker earned \$20.36 per hour while the average non-unionized worker earned \$17.82, an overall union wage premium of 14.3% before differences in individual, job, workplace, industry, and regional characteristics were adjusted for (Table 1).

**Table 1: Individual and job characteristics**

	Employees	Union	Non-union
		'000	
Total	10,778	3,007	7,770
		\$/hr	
Wage	18.53	20.36	17.82
		years	
Job tenure	6.4	8.8	5.5
Experience	16.2	17.3	15.7
		%	
Men	47.9	50.4	47.0
Married	71.8	73.7	71.1
With children	43.1	45.4	42.2
High school graduate	17.5	15.0	18.4
Trade school	12.3	14.8	11.3
College	21.2	21.1	21.2
Undergraduate or higher	19.2	21.2	18.5
Immigrant	17.5	14.3	18.8
Foreign language at home	7.4	6.2	7.8
Part time	15.2	15.7	15.0
Production worker	7.4	12.6	5.4
Manager	15.1	3.3	19.6
Professional	16.2	24.3	13.0
Technical and trades	39.0	43.1	37.4
Clerical and administrative	8.4	3.2	10.4
Marketing and sales	14.0	13.5	14.2

Source: Workplace and Employee Survey, 1999

## Personal and job characteristics

The union ranks had more men (50% versus 47%), more married people (74% versus 71%), and more people with children (45% versus 42%). Unionized workers were somewhat better educated: more had trade school education (15% versus 11%) or undergraduate or higher education (21% versus 18%), and fewer had only high school education (15% versus 18%). Unionized workers also had longer job tenure (9 versus 6 years). Relatively fewer immigrants were in the union ranks. In terms of occupation, union members were more likely to be production, professional or technical workers and less likely to be managers or clerks.

Virtually the same proportion of employees worked part time (15.7% versus 15.0%), had a college education (21.1% versus 21.2%), immigrated during the 1970s or earlier, or had an occupation in marketing.

## Workplace characteristics

The workplace characteristics of unionized employees also differed. They were more likely to be in primary manufacturing, communications and utilities, or education and health-care industries (Table 2). Union members were more likely to be found in larger firms (45% versus 11%) and in not-for-profit organizations (45% versus 11%). In terms of location, Quebec and British Columbia workers were more unionized.

**Table 2: Industry and workplace characteristics**

	Employees	Union	Non-union
		%	
<b>Industry</b>			
Forestry, mining, oil and gas	1.7	1.6	1.8
Labour intensive tertiary manufacturing	4.6	5.5	4.3
Primary product manufacturing	3.7	6.4	2.7
Secondary product manufacturing	3.4	2.5	3.8
Capital intensive tertiary manufacturing	5.4	5.5	5.4
Construction	3.9	3.5	4.1
Transportation, wholesale, and warehousing	10.3	4.9	12.4
Communications and utilities	2.3	4.2	1.5
Retail trade and consumer services	24.1	11.3	29.0
Finance and insurance	4.7	2.1	5.7
Real estate, rental and leasing	1.7	1.2	1.9
Business services	9.3	2.7	11.8
Education and health care	21.7	44.4	12.9
Information and culture	3.3	4.4	2.8
<b>Firm size (employees)</b>			
1 to 19	31.6	7.2	41.1
20 to 49	16.7	8.1	20.0
50 to 499	31.0	39.8	27.6
500 or more	20.7	44.8	11.4
<b>Region</b>			
Ontario	39.9	30.9	43.3
Atlantic	6.6	6.4	6.7
Quebec	23.8	32.4	20.5
Prairie	6.9	7.6	6.5
Alberta	10.3	6.9	11.6
British Columbia	12.6	15.8	11.3
<b>Ownership</b>			
Canadian	83.6	83.7	83.6
Foreign	16.4	16.3	16.4
<b>Status</b>			
For profit	79.2	55.0	88.6
Not for profit	20.8	45.0	11.4

Source: Workplace and Employee Survey, 1999



Ontario and Alberta had significantly more non-unionized employees.

### Raw and adjusted wage differentials

The gross wage differential was adjusted for differences in employee and workplace characteristics (see *Estimation*). The adjustments reduced the union wage differential between comparable workers in comparable workplaces from 14.3% to 7.7% (Table 3). Since the size of establishment differed significantly for the two groups, the adjustment was also done for two sub-samples: workplaces with more than 50 employees and those with more than 100. Although sample sizes were smaller, a better balance was gained between unionized and non-unionized workers: 46.4% in workplaces with more than 50, and 50.7% in workplaces with more than 100. The union wage differential was further reduced to 6.2% and 6.0% respectively in the two sub-samples. Since both unionization and size are closely associated with formalization of workplace policies, a better estimate of the true union effect on wages should result from a sub-sample of larger workplaces.

**Table 3: Union wage differential**

	Employees	Mean wage	Union premium*	T-statistic
	'000	\$/hr		%
<b>Total</b>	<b>10,778</b>	<b>18.53</b>	<b>7.7</b>	<b>8.3</b>
<b>Workplace size</b>				
51 or more	5,462	21.25	6.2	7.4
101 or more	4,353	22.20	6.0	5.7
<b>Sex</b>				
Men	5,167	20.71	7.6	6.3
Women	5,610	16.52	7.0	5.0

Source: Workplace and Employee Survey, 1999

\* Statistically significant at 1%.

The union wage differential appeared to be similar for men and women (7.6% versus 7.0%). The union effect tended to be larger for women, but women are less likely to be union members. The two factors work in opposition so that, overall, the union effect on wages is not much different for men than for women.

### Industry and occupation

The gap also varied by industry (Chart B). Construction, retail trade and consumer services, and education and health care groups were near the top of the scale—

### Estimation

In practice, union wages are generally observed to be higher than non-union wages. But the gross wage difference does not provide a true picture of the differences between comparable workers within comparable workplaces—thus the need to adjust the gross wage differential for factors such as organizational size, occupation, industry or region.<sup>2</sup>

To determine the effect of union status on wages, a wage function was estimated:

$$\ln W_{ij} = \alpha + \beta X_{ij} + \gamma_j + \gamma U_i + \delta$$

Where,  $\ln W_{ij}$  is the natural logarithm of the observed hourly wage of the  $i^{\text{th}}$  worker in the  $j^{\text{th}}$  workplace;  $\alpha$  is a constant;  $X_{ij}$  is a vector of human capital variables for the  $i^{\text{th}}$  worker in the  $j^{\text{th}}$  workplace;  $\gamma_j$  is a set of characteristics of the  $j^{\text{th}}$  workplace;  $U_i$  is the union status of the  $i^{\text{th}}$  worker; and  $\delta$  is a randomly distributed error term. The co-efficient  $\gamma$  gives an estimate of the union/non-union differential in wages, controlling for observed employee and workplace characteristics.

The variables in the analysis include both personal and job characteristics: sex, marital status, presence of children, education (8 categories), job tenure, tenure squared, years of experience, experience squared, part-time, time of immigration (4 categories), foreign languages at home, and occupation groups (5 categories). Some firm characteristics such as industry (13 categories), firm size (3 categories), and region (5 categories) are also included.<sup>3</sup> Because the Workplace and Employee Survey (WES) excludes most of the public sector (all levels of public administration), the control for public versus private sector is not included in the wage equation. Standard errors of various estimates have been adjusted for the complex survey design of WES by using bootstrap weights.

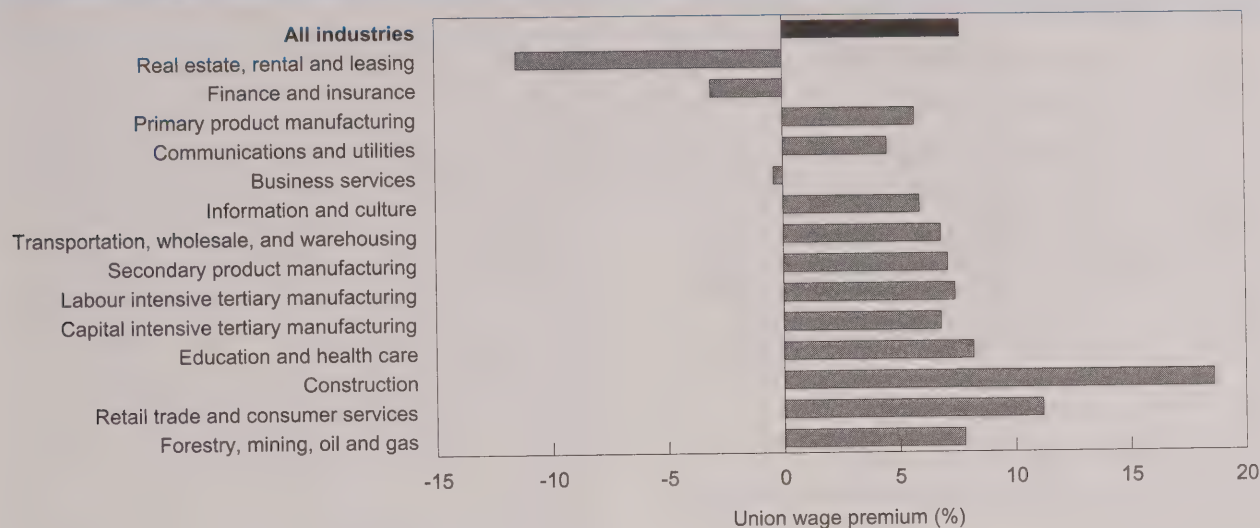
19%, 11% and 8% respectively. At the low end were business services, finance and insurance, and communication and utilities, all of which had no discernible wage gap. In labour-intensive tertiary manufacturing, the gap (7%) was close to the mean. Real estate, rental, and leasing was the only industry in which non-union wages were higher (11%).

Occupations such as construction (15%); chefs, protective, childcare and home support workers (14%); and teachers and arts (13%) had large differentials (Chart C). The management and professional group (-1%) had the smallest differential, followed by financial, administrative and clerical group (2%), one of the largest occupational groupings in the WES sample.

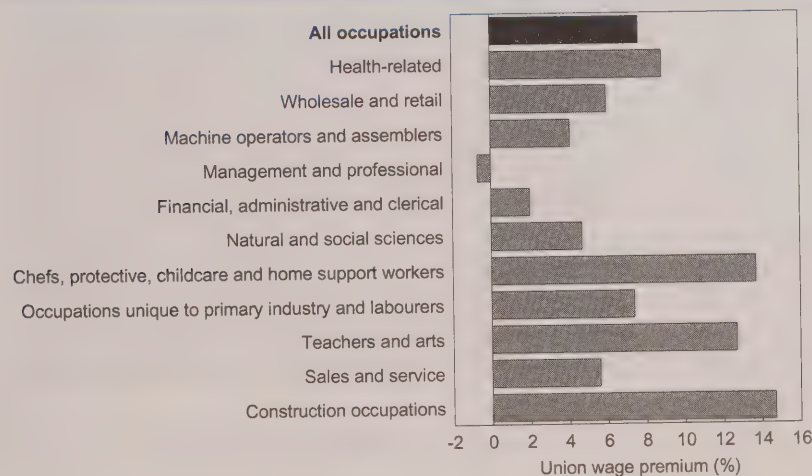
### Regional variation

British Columbia had one of the higher wage differentials at 14% (Chart D). Three other regions showed a wage gap in favour of unionized workers: the Atlantic



**Chart B: The greatest adjusted union wage premium was in construction.**

Source: Workplace and Employee Survey, 1999

**Chart C: Construction trades also had the greatest adjusted wage premium.**

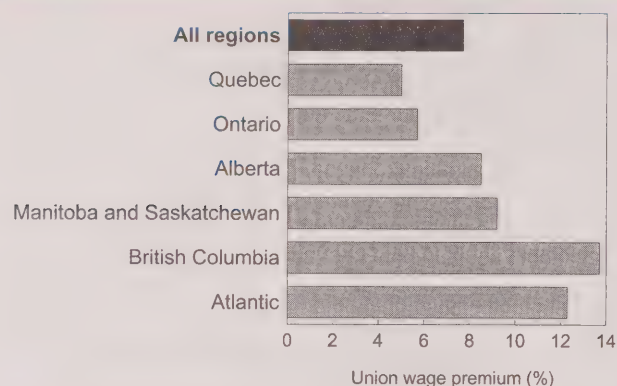
Source: Workplace and Employee Survey, 1999

**Explaining the union wage premium**

Previous research has shown that the union wage premium can be partially explained by differences in personal, job and workplace characteristics. The proportion 'explained' tends to be higher if the non-unionized group or the total economy is used as the base line (see *Decomposition*). About 75% of the pay differential can be attributed to differences in various wage determinants. Even so, a significant portion (25%) still cannot be explained. In fact, returns to additional amounts to various productivity-related personal characteristics—such as education, experience, skill, and marital status—are generally lower in the union group than in the non-union group (Benjamin, Gunderson and Riddell 1998). However, because unionized workers start off on average with higher wages—indicated by the larger intercept of the

provinces (12%), Manitoba and Saskatchewan (9%), and Alberta (8%). Quebec, the most unionized region in Canada, showed a modest gap of 5%; Ontario, a relatively less unionized province, had a union wage premium of 6%, somewhat below the national average.

**Chart D: British Columbia had the highest adjusted union wage differential.**



Source: Workplace and Employee Survey, 1999

union wage equation, the lower returns reflect the structural difference between the two groups in compensation policies.

## Conclusion

These findings provide a glimpse into the nature of union–non-union wage differentials toward the end of the 1990s. An average wage gap of 7.7% (6.0% in workplaces with more than 100 employees) is somewhat smaller than reported previously in the literature. This, along with evidence from other Statistics Canada surveys between 1981 and 1998 suggests a narrowing of the wage gap over time. This narrowing could be partially attributed to the diminishing ability of unions to seek monopoly *rents*, due to factors such as technological advancement, greater competition from overseas, and deregulation. Another explanation could be a strategic reorientation of unions to objectives other than wages, such as employment and job security or less costly forms of employee voice (Gunderson and Hyatt 2001). In addition, results based on the 1999 WES show that some traditionally observed union wage premiums appear to hold across nearly all industries, occupations and regions.

## Decomposition

The wage structure of the union sector, non-union sector, and both sectors combined can be estimated by the following equation:

$$\ln W_i = \alpha + \beta X_i + \varepsilon$$

Where,  $\ln W_i$  is the natural logarithm of the observed hourly wage of the  $i^{\text{th}}$  worker;  $\alpha$  is a constant;  $X_i$  is a vector of personal, job and workplace characteristics associated with the  $i^{\text{th}}$  worker; and  $\varepsilon$  is the error term.

Following the property of ordinary least squares regression (Drolet 2002), the union wage differentials can be decomposed into three components: the explained portion, or the union/non-union wage differentials due to the differences between the union and non-union sectors in terms of personal, job and workplace characteristics ( $\bar{X}_i$ ) evaluated at the competitive wage structure  $\beta^*$ . The choice of  $\beta^*$  (the coefficient from non-union sector  $\beta_n$ , from union sector  $\beta_u$ , from a weighted structure (weighted by the percentage of union and non-union workers), or from the pooled regression  $\beta'$ ) affects the decomposition outcomes. The unexplained portion reflects the differences in the returns to various characteristics ( $X_i$ ), which consist of the union advantage (second term) and non-union disadvantage (third term).

$$\overline{\ln W_u} - \overline{\ln W_n} = (\bar{X}_u - \bar{X}_n)\beta^* + \bar{X}_u(\beta_u - \beta_n) + \bar{X}_n(\beta^* - \beta_n)$$

	$\beta^*$	Log hourly wage difference=0.190	
		Explained	Unexplained
Non-union	$\beta_n$	0.124 65.4%	0.066 34.6%
Union	$\beta_u$	0.087 45.9%	0.103 54.1%
Weighted	$\beta_u P_u + \beta_n P_n$	0.114 59.9%	0.076 40.1%
Pooled	$\beta'$	0.142 75.0%	0.034 25.0%

Source: Workplace and Employee Survey, 1999

## Perspectives

### Notes

1 For instance, union density was overestimated in the Survey of Union Membership of 1984. Nevertheless, the estimates obtained here could be viewed as an approximation of trends in the union wage premium over the selected years.

2 Researchers studying union/non-union wage differentials have pointed out that the possibility of reverse causality exists in the union-wages relationship. Rather than driving up wages, unions may find it easier to organize workplaces with particular characteristics—for example, large firms, or ones that use a lot of technology or are concentrated in certain geographic areas. In this case, it would be necessary to control for the simultaneous effects of unions on wages and wages on unions before the ‘true’ effect of unions on wages could be extracted. In this study, a two-stage model in which both wages and union status would be simultaneously determined has not been estimated. Since several researchers have found OLS estimates to be just as good as 2SLS models, OLS estimates are reported for the sake of simplicity.

3 The analysis also incorporates other firm characteristics and management practices deemed to affect wage levels, such as non-profit status, foreign ownership, organizational flexibility, incentive pay, classroom and on-the-job training, use of teams, and use of technology.

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# Family spending power

Jamie Carson

IS INCOME A GOOD MEASURE of a family's economic well-being? Consider two families, each with an income of \$40,000. One comprises two parents and three young children, the other a lone parent with a teenage child. The fortunes of these families differ according to the number of people present and their various demands on the family income.

Per capita income provides an alternative measure of well-being but fails to account for the benefits of 'income pooling' to meet joint expenses. Also, families generally enjoy 'economies of scale'—two can live more cheaply than twice one. Living spaces and automobiles are shared, and food and clothes shopping becomes more efficient—just ask any younger sibling about hand-me-downs. These factors enable persons living in families to achieve a higher standard of living than would be possible on their own.

To get a better picture of overall spending power and to make comparisons between different family types, it is necessary to look at both income pooling and economies of scale within families. An equivalence scale is the device most commonly used to level the playing field. Equivalence scales date back at least as far as Ernst Engel (1821-1896), a German statistician who found that lower-income families spent a relatively higher share of their income on food.

To construct an equivalence scale, family income is divided by an adjustment factor that reflects family size and composition, and the economies of scale that families enjoy.<sup>1</sup> The more the people, the more the slices of the income pie. But children, for example, would probably need a thinner slice than the adults in the family. The family would benefit from economies of scale by sharing living space and other big ticket items, as well as making more efficient use of food and clothing.<sup>2</sup>

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After the adjustments, or equivalencies, have been calculated, two families with adjusted incomes of \$40,000 can be considered to have the same spending power, whether the family consists of 2 or 10 members. Adjusted incomes also allow the comparison of the well-being of unattached individuals with that of families.<sup>3</sup>

Equivalence scales are useful not only in comparing different family units at a point in time, but also in tracing the evolution of family spending power over time. This is particularly important when family composition changes, as it has in the past 20 years. Spending power is affected by both income trends and family composition trends. Equivalence scales inherently control for changes in family composition to place income comparisons across long periods of time on a more equal footing.

This article begins with a look at the main changes in family composition over the past 20 years (see *Data sources and definitions*). An equivalence scale adjustment is then applied to each family type to show how spending power has evolved for each one. Finally, the equivalence scale adjustment is used to generalize across family types to examine spending power for all families over time. Each section looks at average level and distribution of incomes using after-tax family incomes, before and after adjustment. (For details on the adjustment, see *The 40-30 equivalence scale*.)

## Less togetherness

Most of the well-known demographic trends have contributed to changes in the size and type of families. The aging of the baby boom, the decline in fertility, the increasing average age at marriage, and the increase in family breakdown have contributed to the declining prevalence of the two-parents-with-children family and the increase in other forms of household organization.<sup>4</sup> The average family size in 1999 was 10% smaller than in 1980 (Table 1). In 1999, over one-third of families were unattached individuals, 1 in 25 families fell into the lone-parent category, 1 in 5 were couples with no children, and 1 in 6 were couples with children.

## The 40-30 equivalence scale

Equivalence scales generally take a reference family size, usually a one-person family, and adjust the incomes of families of other sizes so that they are equivalent to the reference. Statistics Canada has developed a 40-30 equivalence scale to calculate its low-income measure (an alternative to the low-income cutoff).

The reference base—the unattached individual—is assigned a factor of 1. For other families, the factor is increased by 40% for each adult, and 30% for each child.<sup>5</sup> Adjusted family income is then derived by dividing family income by the factor. For example, a family comprising a husband, a wife and two children and having an income of \$50,000 has an adjusted income of \$25,000:  $\$50,000 \div (1+0.4+0.3+0.3) = \$50,000 \div 2 = \$25,000$ . That is, the family (and each member) has spending power equivalent to that of an unattached individual with an income of \$25,000.

Why 40-30? Indeed, no consensus exists as to the ideal adjustment factor. The 40-30 standard was chosen because it was better than other models in providing a reasonably accurate picture of low income in Canada. A major plus is that the standard is fairly easy to understand and use.

While the overall number of families grew by 39% between 1980 and 1999, the greatest change occurred in the lone-parent category—up 74%. Also fast-growing were unattached individuals and couples without children (up 61% and 46% respectively). The growth rate for couples with children was well below the overall average. In fact, their 4% growth rate was even

lower than Canada's population growth rate during this period. Growth rates for 'other' families mirrored the situation for couples. Those without children grew at an above-average rate, while those with children came in below. The net effect, therefore, was a shift from larger to smaller families through the 1980s and 1990s.

Since family size for individuals and couples without children cannot change, the overall decrease of 10% would have had to come from the other categories. Both couples and lone parents with dependent children experienced only minor changes in family size. Therefore, none of these four categories, which account for over 75% of families, factored into the overall 10% family size decrease between 1980 and 1999. The declines came from the 'other' categories, in particular families with children.

## Different family types, different effects

Which family types had unadjusted incomes above the overall average? Not surprisingly, families with two or more adults have more potential income earners—reflected in their higher averages for unadjusted after-tax family income (Table 2). On the other hand, unattached individuals and lone parents had after-tax income averages just over half the overall average.

The family size adjustment provides a better comparison. In this case, instead of 'other' families, couples without children had the highest adjusted family incomes. Couples with children dropped from well above to just over the overall average. Unattached individuals remained relatively worse off, but they moved up from 53% to 82%. Lone parents, however, did not move up, remaining at 57%.

A perfectly even distribution would result in 20% of a given family type in each quintile (see *Quintiles 101*). Using unadjusted income, the distribution of unattached individuals is significantly skewed to the lower quintiles (Chart A). However, this over-

**Table 1: Families by type, 1999**

	Share	Change from 1980 to 1999			
		Number	Family size %	Number of adults	Number of children
<b>Total</b>	<b>100</b>	<b>39</b>	<b>-10</b>	<b>-6</b>	<b>-23</b>
Unattached individuals	34	61	0	0	...
Couple, no children	22	46	0	0	...
Couple, with children	17	4	-1	0	-1
Lone parent	4	74	1	0	1
Other, no children	16	51	-3	-3	...
Other, with children	7	5	-7	-7	-7

Sources: Survey of Consumer Finances, 1980 to 1995; Survey of Labour and Income Dynamics, 1996 to 1999



**Table 2: Income by family type**

	1999 \$		Ratio to overall average	
	After-tax income	Adjusted after-tax income	After-tax income	Adjusted after-tax income
	\$		%	
<b>Total</b>	<b>41,600</b>	<b>26,900</b>	<b>100</b>	<b>100</b>
Unattached individuals	22,100	22,100	53	82
Couple, no children	46,000	32,900	111	122
Couple, with children	53,900	27,700	130	103
Lone parent	23,700	15,200	57	57
Other, no children	58,900	31,200	142	116
Other, with children	60,600	25,900	146	96

Source: Survey of Labour and Income Dynamics, 1999

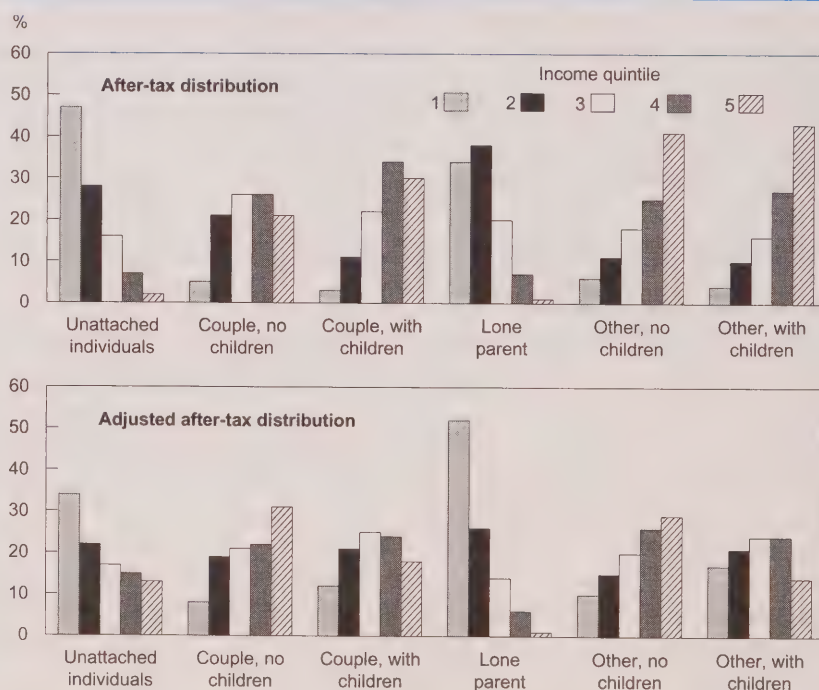
### Quintiles 101

The 12.7 million families in 1999 were ordered from lowest after-tax income to highest, and split into five equal categories, or quintiles. The lowest quintile is made up of families with the bottom 20% of after-tax incomes, and so on up the line.

After the 40-30 equivalence scale was applied, families were re-ranked based on adjusted after-tax family income, and the quintiles were re-calculated. Since over half the families changed quintiles when adjusted figures were used, the membership of a given quintile differed decidedly on a pre- and post-adjustment basis.

weighting is mitigated somewhat if adjusted incomes are used. The opposite occurs for 'other' families. Lone parents remain skewed to the lower quintiles after the adjustment, with their proportion in the lowest actually increasing. Couples without children move from a fairly even distribution to a slight skew to higher quintiles, reflecting over-representation in the highest adjusted family income quintile. The distribution for couples with children, however, is more even on an adjusted basis.

The net result of ups and downs between 1980 and 1999 is that couples with children and lone-parent families saw the biggest gains in both after-tax income and spending power (Table 3). Factoring in the decline in family size affects only other families with children, with the change between 1980 and 1999 moving from 4% (unadjusted) to 8% (adjusted). Conversely, since no adjustment factor applies, the 5% improvement for unattached individuals is equal on either basis.

**Chart A: Adjusting for family size changes the distribution of families by income.**

Source: Survey of Labour and Income Dynamics, 1999



**Table 3: Change in average income (1999\$) by family type, 1980 to 1999**

	After-tax income	Adjusted after-tax income
	%	
<b>Total</b>	<b>1</b>	<b>5</b>
Unattached individuals	5	5
Couple, no children	2	2
Couple, with children	11	11
Lone parent	15	16
Other, no children	4	5
Other, with children	4	8

Sources: Survey of Consumer Finances, 1980 to 1995; Survey of Labour and Income Dynamics, 1996 to 1999

Indeed, the income trend for every family type except the extended group was essentially unaffected by the choice of income measure.

Yet, the overall trend showed markedly better improvement, relative to unadjusted figures, with the declines in family size factored in. This paradox is easily explained. Aside from the decline in family size for families in the 'other' categories, the drop in average family size is accounted for by the shift from larger family types to smaller ones. Since these smaller families have lower unadjusted income averages and contribute more weight to the overall average, they drag down the overall level of growth, even if the average income of any particular family type remains constant.

### Adjustment narrows the income gap

The equivalence adjustment enables comparison of spending power by type of family. The adjustment creates a level playing field for comparing families of different sizes and make-ups, and a different snapshot in terms of average level and distribution of spending power emerges.

Overall, average family after-tax income was \$41,600 in 1999 (Table 4). One way to measure the spread or distribution of incomes is to compare average after-tax incomes of the top and bottom quintiles. The 1999 'after-tax income gap', or ratio, was 8.30 to 1, indicating that families in the highest quintile brought home \$8.30 in disposable income for every \$1 brought home by families in the lowest quintile.<sup>6</sup>

**Table 4: Average family size and after-tax income by income quintile**

	Family size			Family income
	Total	Adults	Children	
\$				
Unadjusted				
Total	2.38	1.89	0.49	41,600
Bottom	1.31	1.16	0.15	10,700
Second	1.89	1.53	0.36	23,000
Third	2.37	1.85	0.52	34,900
Fourth	2.92	2.20	0.72	50,700
Top	3.44	2.73	0.71	88,500
Adjusted				
Total	2.38	1.89	0.49	26,900
Bottom	1.94	1.44	0.50	9,100
Second	2.34	1.77	0.57	17,000
Third	2.55	1.97	0.58	23,800
Fourth	2.61	2.12	0.49	32,000
Top	2.48	2.17	0.31	52,700

Source: Survey of Labour and Income Dynamics, 1999

Families in the top 20% had the largest family sizes: 2.73 adults and 0.71 children. Families in the lowest 20% averaged only 1.16 adults and 0.15 children.<sup>7</sup> Overall, average family size in 1999 was 2.38—1.89 adults and 0.49 children.

What is the effect of applying the 40-30 equivalence scale, re-ranking families based on the adjusted after-tax family income, and re-calculating quintiles? First, the average adjusted total income is lower than the unadjusted figure because of the family size adjustment. This factor was roughly 1.5 overall for 1999. Second, each quintile reflects a different membership, since over half the families changed quintiles when adjusted figures were used.

Based on the adjusted figures, the average family had the equivalent spending power of an unattached individual with \$26,900 in after-tax income in 1999. Since adjusted incomes fall into a narrower range, the gap between the highest and lowest 20% also falls—to \$5 for every \$1. This smaller gap indicates a tighter distribution when family incomes are adjusted for family size.

With the new quintiles, family size rises from the lowest quintile, peaks in the middle and upper-middle quintiles, and drops off in the highest. Applying the adjustment removes the upward skew to family size as one moves up the income scale.

The average number of adults per family continues to climb with adjusted income, although not at the rate seen with the unadjusted data. Averages for children per family no longer climb; in fact, families in the highest 20% of adjusted after-tax incomes have the lowest average number of children.

### Little change in after-tax income in 20 years

If the equivalence adjustment tends to yield a more equal income distribution at a point in time, how does it affect income trends? The adjustment process in this instance controls for changes in family structure that occurred over the years.

From 1980 to 1999, Canada's population, which grew by 25%, was characterized by two opposing trends: the number of economic families grew by almost 40%, while the size of the average family fell by 10% (Chart B).

For families overall, the average number of children per family fell almost four times as much as the number of adults (23% versus 6%). No pattern emerged in terms of changes by quintile (Table 5).<sup>8</sup>

The pattern for 1999 was representative of the entire period: family size rose steadily from one quintile to the next, based on family income after tax. Using adjusted income quintiles, the 1999 pattern—family size rising to a peak in the middle quintiles and falling off—essentially held as well.

Also keeping to the 1999 pattern was the adjustment's effect on family income averages and distributions. The net result of two decades of rises and drops in average adjusted after-tax incomes was an increase of 5% (Chart C). This compares slightly more favourably with the 1% increase in unadjusted incomes, the difference being caused by the inclusion of the decrease in family size.

The trends indicated by the two measures, however, are the same. Both income lines declined during periods that included economic downturns (the recessions of the early 1980s and 1990s) and peaked in 1989, along with the business cycle. For the mid-1990s, both lines show family incomes to be stagnant, with some gains evident in the latter half of the 1990s.

### Data sources and definitions

Data are from the **Survey of Consumer Finances** for 1980 through 1995, and from the **Survey of Labour and Income Dynamics** for 1996 through 1999. The content and estimates from the two surveys line up very well (Cotton et al. 1999).

**After-tax income** is market income (wages and salaries, self-employment income, investment income, private pension income, etc.), plus government transfers (Canada and Quebec Pension Plans [C/QPP] and Child Tax credits and benefits) minus income taxes (federal and provincial).<sup>9</sup> Excluded from income taxes are contributions to Employment Insurance and C/QPP. Note also that this article refers to family income, while the income tax system is based for the most part on individual income, claims and deductions. After-tax income is the source of money for family expenditures, and as such is an excellent measure of a family's spending power. The term 'disposable income' is used interchangeably with 'after-tax income.' The after-tax measure also reflects the effect of Canada's income redistribution system, which relies on both taxes and government transfers.

Financial figures are in **constant (1999) dollars**.

An **economic family** consists of individuals related by blood, marriage (including common law) or adoption sharing a common dwelling. Unattached individuals, or 'families of size one,' are persons living alone or with unrelated persons.

**Children** are counted as such only if they are under 16. For this study, children under 16 are considered dependants, and children 16 and over are 'offspring' or non-dependants.

#### Family types<sup>10</sup>

**Unattached individuals** live alone or with people outside their economic family.

**Couples with no children.** The adjustment factor for this group is constant, at 1.4.

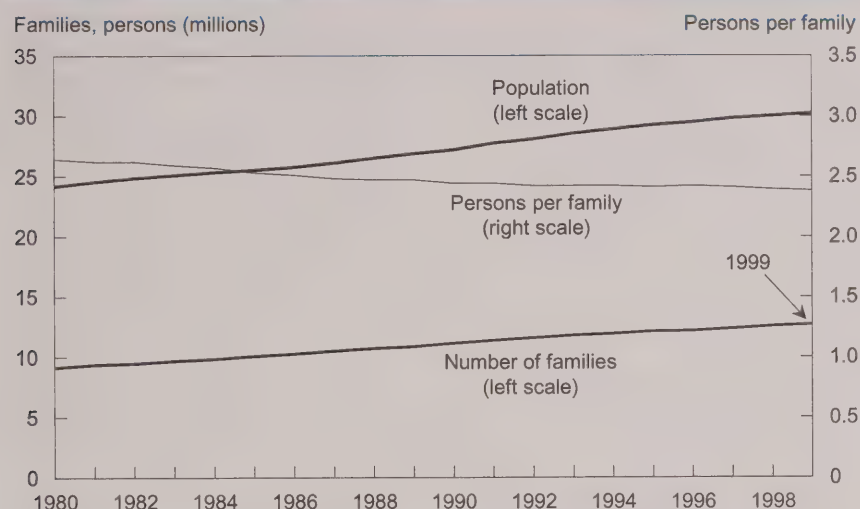
**Couples with children** are couples with only dependent children. These families have an adjustment factor of 1.4 plus 0.3 for each child in the family.<sup>11</sup>

**Lone parents with children** have an adjustment factor of 1, plus 0.4 for the first child, plus 0.3 for each of the other children.

**Other families** include lone parents who live with blood relatives such as brothers and sisters, couples with a child 16 or over living with them, and three-generation families who live under one roof. The group is subdivided into those with children under 16, and those in which all family members are 16 and over. Families in these categories have adjustment factors of at least 1.4 (for the first two in the household), plus 0.4 for each additional adult, and 0.3 for each additional child under 16.



**Chart B: The number of families grew faster than the population, so average family size fell steadily.**



Sources: Survey of Consumer Finances, 1980 to 1995; Survey of Labour and Income Dynamics, 1996 to 1999

in all thereafter. These changes were similar for the adjusted measures and re-calculated quintiles.

Taking the two decades together, for the top and bottom quintiles, unadjusted after-tax incomes rose 7% and 6% respectively, while growth in the adjusted figures was 10% and 11%. Since these changes were remarkably similar, the 1999 adjusted and unadjusted income gaps ended up essentially unchanged from 1980 levels.

### Summary

Family income distributions as typically produced mask the effects of income pooling and economies of scale within families, and do not allow for easy comparison of the economic well-being of different kinds of families. Adjusting family

### An unequal recovery in the 1990s

The trend lines for the income gap measures—the average income of the top fifth of families divided by that of the bottom fifth—also moved in tandem (Chart D). The gap moved opposite to the income average throughout the 1980s, reaching a minimum in 1989-1990. Beginning in 1992, however, this converse relationship broke down, and the income averages and the gap often rose or fell in tandem.<sup>12</sup>

Between 1980 and 1999, after-tax family income fell for the three middle quintiles (Chart E). In terms of family spending power, however, no real declines took place. Instead, families in the second and third (middle) quintiles showed a 1999 adjusted income average unchanged from 1980 levels.

The year 1989 marked a major turning point for the top and bottom quintiles. Up to 1989, the bottom quintile had been experiencing steady gains, totalling 15% in average after-tax income for the decade. Between 1989 and 1999, however, the trend reversed and the average fell 8%. For the top quintile, unadjusted family incomes rose only 1% up to 1989, but rose 6%

**Table 5: Family size and composition**

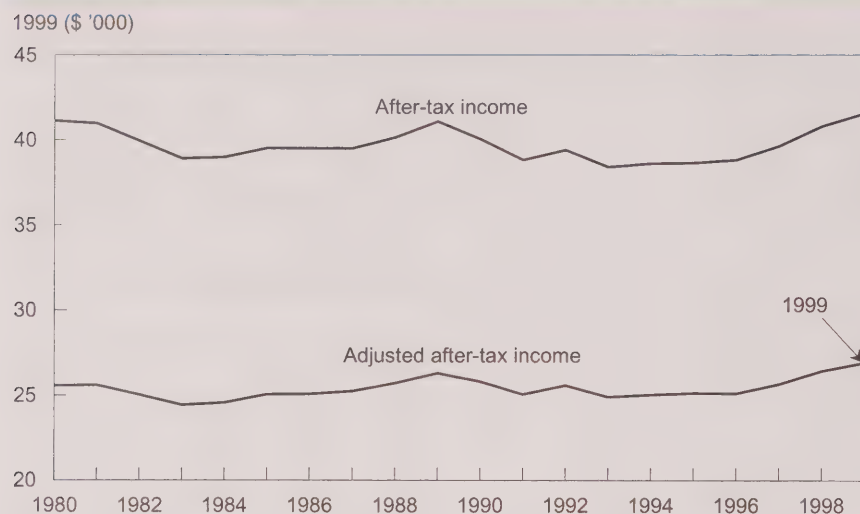
	Population	Families	Family size
	'000		
1980	24,164	9,153	2.64
1999	30,189	12,685	2.38
% change	25	39	-10
	Change		
	Total	Adults	Children
Quintile*	%		
<b>Total</b>	<b>-10</b>	<b>-6</b>	<b>-23</b>
Bottom	-11	-7	-35
Second	-10	-8	-18
Third	-14	-6	-32
Fourth	-10	-4	-23
Top	-5	-4	-11

Sources: Survey of Consumer Finances, 1980 to 1995; Survey of Labour and Income Dynamics, 1996 to 1999

\* Based on unadjusted after-tax family income quintiles.



**Chart C: After-tax family incomes and spending power in 1999 were essentially unchanged from 1980.**



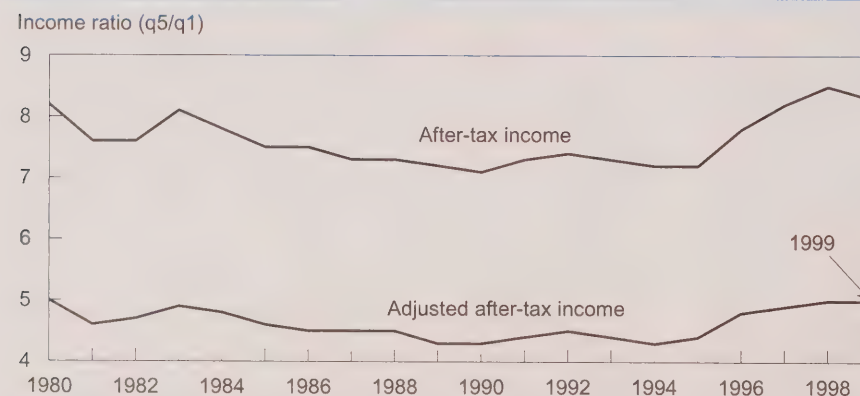
Sources: Survey of Consumer Finances, 1980 to 1995; Survey of Labour and Income Dynamics, 1996 to 1999

incomes for family size and composition enables a better comparison.

When average family size declines, as it did during the 1980s and 1990s, changes in family income

averages tend to show families as worse off than they really are. Using the 40-30 family size adjustment, after-tax family incomes were 5% higher in 1999 than in 1980, compared with a 1% gain shown by unadjusted data.

**Chart D: Recent increases in the income gap reversed the reductions experienced for most of the 1980s and 1990s.**



Sources: Survey of Consumer Finances, 1980 to 1995; Survey of Labour and Income Dynamics, 1996 to 1999

The income distribution picture also varies depending on whether a family size adjustment is used or not. If families are ranked by after-tax income, the top 20% received roughly \$8 for every \$1 received by the bottom 20% in 1999. When re-ranked based on adjusted incomes, the gap narrows to approximately \$5 versus \$1.

Larger family sizes contribute to above-average family incomes, pushing averages up and making smaller families seem economically worse off than they actually are. Adjusting for family size makes for a fairer comparison of families of different sizes along the same relative scale.

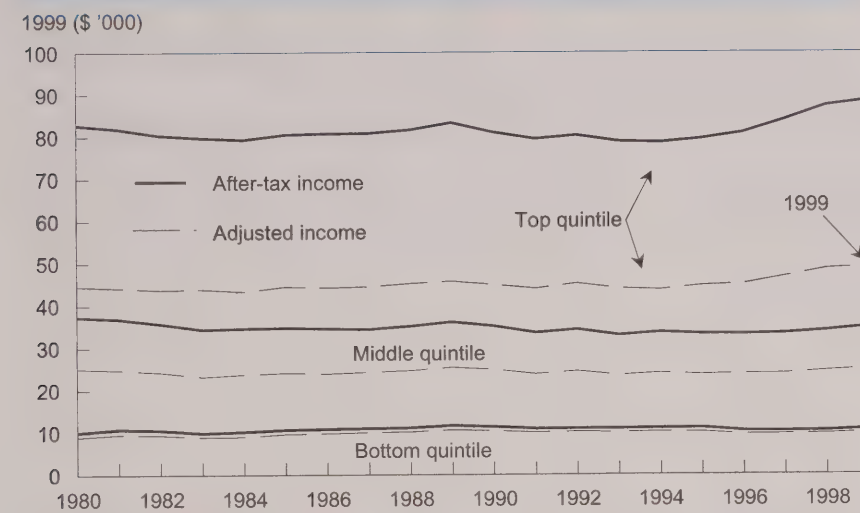
Changes in the shares of various family types explain most of the declines in average family size between 1980 and 1999. Growth rates in the number of smaller families, including unattached individuals, lone parents, and couples without children, exceeded the overall rate. After the 40-30 adjustment, couples without children had the highest levels of spending power, on average, while lone-parent families were the worst off.

### Perspectives

#### Notes

1 Some equivalence scales get more complicated, adding in other family characteristics such as detailed age and sex breakdowns, along with other factors such as characteristics of the family's place of residence (urban centres having higher costs of living than rural). See Wolfson and Evans (1989) for a good discussion of this issue, Friedman (1952) for an interesting example of the challenges in constructing an equivalence scale, and Bittman and Goodin (1998) for an innovative application: an equivalence scale for time.

**Chart E: The 40-30 adjustment had the greatest effect on the top quintile, the least on the bottom.**



Sources: Survey of Consumer Finances, 1980 to 1995; Survey of Labour and Income Dynamics, 1996 to 1999

2 Per capita family incomes are essentially an equivalence scale with no economies of scale factored in. All family members are assumed to use an equal share of the family's resources.

3 In the case of data published by Statistics Canada, estimates are shown separately for families made up of two or more persons and for unattached individuals. This split provides a very partial adjustment for family size—or the number of persons who derive their well-being from the family income. External citations of family income averages usually refer only to that for families, leaving out the effect of income averages for people living on their own.

4 See Milan (2000) for a complete discussion of trends in Canadian families.

5 More technically, family members are classified as adults if they are 16 years of age or over. Family members under 16 are counted as children and receive the 30% adjustment. For lone-parent families with no other adult present,

40% is added for the first child (regardless of age), and 30% for subsequent children. See Statistics Canada (1999) for a complete discussion.

6 A close cousin of the income gap measure is the share of overall income going to each quintile. This 'share of income' measure can be approximated by dividing the average income for each quintile by five times the overall average income (\$41,600 in 1999). For example, the \$10,700 average after-tax family income for the 20% of families in the lowest quintile amounts to a 5% share of overall income.

7 As a result of the steady growth in family size along the (after-tax) income scale, approximately 8.7 million people were in the highest quintile in 1999 and less than 3.3 million were in the lowest. Only the middle quintile (approximately 6.0 million people) represented 20% of the population as well as 20% of families.

8 Note that which families fall into a given quintile depends on independent rankings of family income for the year

in question. As a result, one cannot conclude that families in the highest 20% of income in 1980 shrank in size by 5% over 16 years. Rather, the average size of families ranked in the top 20% in 1999 was 5% smaller than the 1980 selection of highest after-tax income families.

9 For details on income concepts used by the Agency, see Statistics Canada (2001).

10 In this study, estimates of income and number of families by type are derived from a sample survey of approximately 35,000 households. As with other sample surveys, these estimates are subject to sampling and non-sampling errors. Survey weighting procedures impose controls based on census counts for the number of families by size, but not for family type. However, reconciliation of survey estimates with census counts indicates sufficient reliability for this study's conclusions about comparative incomes and trends.

11 Couples with children aged 16 and over as well as children under 16 more closely resemble couples with all children 16 and over in terms of average adults and children per family, as well as average after-tax family incomes. Hence, for this study, couples with children both under and over 16 have been excluded from the couples with children category and included in the 'other' category. More refined breakdowns are available from the author.

12 See Zyblock and Lin (forthcoming) for a discussion of issues related to this observation.

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# Cumulative earnings among young workers

René Morissette

**T**HE LABOUR MARKET has changed markedly over the last three decades. Young people now stay in school longer than in the mid-1970s. Young men not attending school are less likely to be employed full time, and for much of the 1990s, those who worked full year, full time, received lower earnings than their counterparts in the mid-1970s. But, young women not attending school are generally more likely to have a full-time job than their counterparts three decades ago, and many of those who work full year, full time receive higher earnings.

While changes in *annual* earnings of various groups of workers over the last three decades have been well documented (Morissette, Myles and Picot 1994; Beach and Slotsve 1996; Heisz, Jackson and Picot 2002), the combined effect of changes in school attendance, full-time employment rates, and annual earnings on *cumulative* earnings—the sum of earnings that individuals receive over several years—has not been investigated.

Cumulative earnings are important for several reasons. Decreases in cumulative earnings and the resulting effect on wealth holdings may lessen the ability of individuals to buffer income losses caused by permanent layoffs. With a smaller financial cushion, they may postpone the decision to leave home, get married, have children, buy a first house, or start a business. They may also reduce consumption during unemployment spells, search more intensely for a new job if unemployed, and be less likely to quit a job.

Using the Survey of Consumer Finances and the Survey of Labour and Income Dynamics, this article first reviews changes in school attendance, employment rates, and earnings in Canada since the mid 1970s. It then provides estimates of cumulative earnings over two 12-year periods—1973 to 1984 and 1988 to 1999—and examines the extent to which changes in cumulative earnings can explain changes in wealth holdings of families.

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**Table 1: School attendance, employment and earnings**

	1976	1981	1986	1989	1996	2001
%						
<b>Attending school full time</b>						
Men						
16 to 24	34.0	34.0	39.6	42.8	50.1	47.7
25 to 29	4.0	3.6	4.6	4.8	7.9	7.7
Women						
16 to 24	30.7	32.2	38.9	43.7	51.7	52.5
25 to 29	2.0	1.8	3.0	4.1	6.3	7.3
<b>Non-students employed full time*</b>						
Men						
16 to 24	79.6	77.6	74.3	78.5	66.5	69.1
25 to 29	90.0	88.1	83.7	86.8	80.5	83.8
30 to 44	92.3	91.0	87.3	88.7	82.8	85.3
45 to 54	88.9	87.5	84.7	87.3	80.5	81.6
Women						
16 to 24	59.4	61.0	60.2	63.4	49.2	56.3
25 to 29	44.4	50.9	57.3	61.6	59.5	66.2
30 to 44	37.4	45.9	51.5	56.6	56.1	61.1
45 to 54	35.8	38.4	41.2	49.1	51.5	58.1
	1975	1981	1986	1989	1996	2000
<b>Earnings of full-year, full-time employees (1975=100)</b>						
Men						
16 to 24	100.0	102.2	88.0	90.6	81.7	91.3
25 to 29	100.0	102.4	91.8	91.5	86.6	99.2
30 to 44	100.0	96.2	96.0	96.2	93.1	100.0
45 to 54	100.0	100.6	103.3	103.6	106.8	108.8
Women						
16 to 24	100.0	102.3	91.0	96.5	97.8	103.5
25 to 29	100.0	101.7	96.8	97.2	99.6	103.7
30 to 44	100.0	106.6	110.6	111.0	118.7	121.6
45 to 54	100.0	101.7	109.2	111.0	133.9	142.9

Sources: Labour Force Survey (September); Survey of Consumer Finances, 1975, 1981, 1986, 1989 and 1996; Survey of Labour and Income Dynamics, 2000

\* May include part-time students. Full-year, full-time employees work mainly full time for at least 48 weeks per year and receive no self-employment income.

### School, employment and earnings: 1976-2001

In 1976, only about one-third of young men (aged 16 to 24) attended school full time (Table 1). Twenty-five years later, almost half of them did so. Of those who were not in school full time, 80% had a full-time job in 1976, compared with only 69% in 2001.<sup>1</sup> Furthermore, even though their annual pay (in constant dollars) rose substantially between 1996 and 2000, young men employed full year, full time received 9% lower wages and salaries in 2000 than their counterparts in 1975 (Chart), and even less in the mid-1980s and mid-1990s.

Longer school attendance and lower chances of having a full-time job when not in school were also observed for men aged 25 to 29. Between the mid-1980s and the mid-1990s, the annual wages and salaries of those working full year, full time were much lower than in 1975. Between 1996 and 2000, they rose markedly, returning almost to their 1975 level in 2000.<sup>2</sup>

Men aged 30 to 54 were less likely to hold a full-time job in 2001 than in 1976. Among those employed full year full time, only those 45 to 54 saw an increase in wages and salaries over the 25 years.

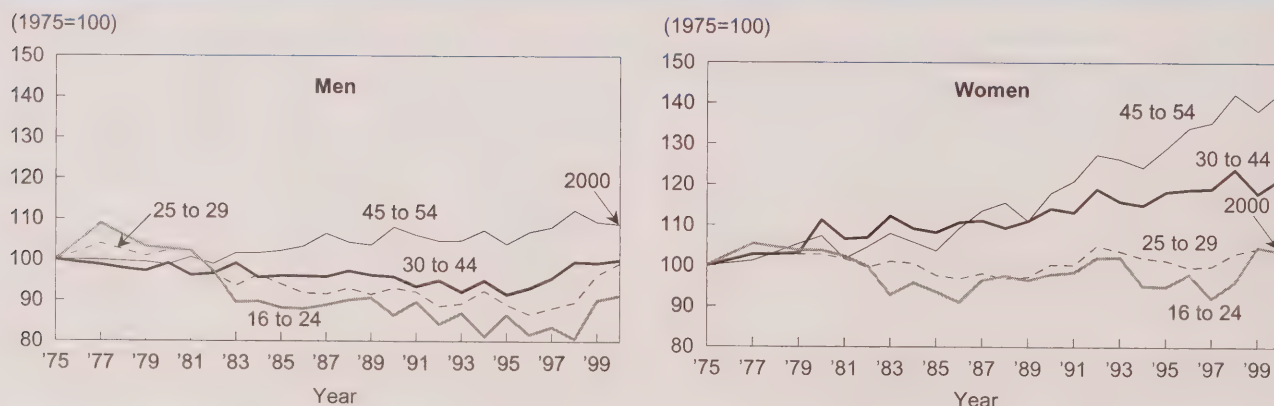
The story is different for women. While young women increased their school attendance markedly, even more so than young men, women 25 and over saw their

chances of holding a full-time job once out of school increase by at least 20 percentage points over the same period.<sup>3</sup> Furthermore, their wages and salaries evolved much more favourably, staying fairly constant for women aged 25 to 29 and increasing at least 20% for those 30 to 54.

### Cumulative earnings: 1973-1984, 1988-1999

Changes in school attendance and in the wage structure have been documented for Canada and several other OECD countries. While considerable effort has been spent assessing the causes of the changes in the distribution of earnings (Katz and Murphy 1992; DiNardo, Fortin and Lemieux 1996; Beaudry and Green 2002; Card and DiNardo 2002), little has been done to examine the consequences of such changes on the cumulative earnings of individuals over 10 or more years. To do so, the wages and salaries received by individuals over the 1973 to 1984 and 1988 to 1999 periods were summed for synthetic cohorts of individuals (see *Data sources and definitions*). Cumulative earnings were calculated in each 12-year period for both Canadian-born individuals and immigrants. Immigrants counted in the 1973 to 1984 period arrived in 1972 or earlier, and those counted in the 1988 to 1999 period arrived in 1987 or earlier.

**Chart: For men working full year full time, real wages and salaries between 1975 and 2000 increased only for those aged 45 to 54.**



Sources: Survey of Consumer Finances, 1975-1995; Survey of Labour and Income Dynamics, 1996-2000



### Down for young men born here

The results are striking. Over the period from 1973 to 1984, Canadian-born men aged 26 to 35 in 1984 received \$289,500 (in 1999 dollars) in wages and salaries (Table 2). However, between 1988 and 1999, their counterparts received only \$246,500.<sup>4</sup> In contrast,

Canadian-born women of the same age amassed \$171,600 between 1988 and 1999, about \$20,000 more than between 1973 and 1984.<sup>5</sup> For this age group as a whole, cumulative wages and salaries dropped by roughly \$10,000 between the two periods.

Why the decline for 26 to 35 year-old men? The answer is simple. First, young men now stay in school longer than their counterparts did during the mid-1970s, thus decreasing the number of years in which they receive significant wages. Second, once out of school, they are less likely to have a full-time—and therefore relatively well-paid—job than in the past. Third, those who did work full year, full time earned less annually during much of the 1980s and 1990s than their counterparts did previously.

Why the rise for women? Changes in school attendance cannot be an explanation since young women also stay in school longer. The greater presence of women in full-time jobs may have increased their cumulative earnings by giving them greater access to better-paid jobs and also by increasing their annual workhours. Second, for some of those who worked full year, full time—for example, those 30 and over—annual wages and salaries may have increased partly because of the growing tendency of women to be employed in high-paying occupations.

For older age groups, the increasing participation of women in the labour market and their move towards better-paying occupations has resulted in massive increases in cumulative wages and salaries. For instance, Canadian-born women 46 to 55 increased their cumulative wages and salaries by more than \$100,000 between the two periods. The increase for Canadian-born women 36 to 45 was about \$70,000. In contrast, Canadian-born men saw drops of about \$10,000 and \$50,000 respectively.

**Table 2: Cumulative earnings over 12 years**

	Cumulative wages and salaries			Cumulative earnings*		
	1973-1984	1988-1999	Change	1973-1984	1988-1999	Change
	1999 \$		%	1999 \$		%
<b>Canadian-born</b>						
26 to 35	220,600	209,000	-5.3	229,200	217,800	-5.0
Men	289,500	246,500	-14.9	304,100	258,600	-15.0
Women	151,400	171,600	13.3	154,100	177,100	14.9
26 to 30	186,000	157,500	-15.3	191,600	162,300	-15.3
Men	231,700	180,300	-22.2	241,100	186,800	-22.5
Women	140,100	134,200	-4.2	142,000	137,300	-3.3
31 to 35	261,300	256,100	-2.0	273,600	268,600	-1.8
Men	357,800	308,400	-13.8	378,600	325,800	-13.9
Women	164,400	205,100	24.8	168,300	212,900	26.5
36 to 45	303,000	316,200	4.4	322,500	338,200	4.9
Men	454,300	406,700	-10.5	489,400	438,100	-10.5
Women	151,600	224,400	48.0	155,500	236,900	52.3
46 to 55	295,600	345,600	16.9	321,900	373,900	16.2
Men	461,000	451,800	-2.0	509,400	495,800	-2.7
Women	131,100	239,900	83.0	135,600	252,600	86.3
<b>Immigrants</b>						
26 to 35	246,100	212,300	-13.7	254,600	220,800	-13.3
Men	318,800	243,600	-23.6	333,500	256,400	-23.1
Women	175,400	176,200	0.5	177,800	179,800	1.1
36 to 45	319,800	306,500	-4.2	341,900	329,000	-3.8
Men	467,600	393,200	-15.9	505,700	429,200	-15.1
Women	170,800	226,300	32.5	176,900	236,100	33.5
46 to 55	330,600	355,100	7.4	357,500	390,100	9.1
Men	487,200	473,500	-2.8	532,000	530,400	-0.3
Women	152,700	244,400	60.1	159,200	258,900	62.6

Sources: Survey of Consumer Finances, 1973-1995; Survey of Labour and Income Dynamics, 1996-1999

\* Wages and salaries plus net self-employment income. Estimates for 1974, 1976 and 1978 are based on interpolation. For the 1973-1984 period, immigrants are those who arrived in 1972 or earlier; and for the 1988-1999 period, in 1987 or earlier.



## Data sources and definitions

This article uses the **Survey of Consumer Finances** and the **Survey of Labour and Income Dynamics** to estimate the sum of earnings earned by individuals over two 12-year periods: 1973 to 1984 and 1988 to 1999. To do so, synthetic cohorts of individuals were constructed and their average earnings summed over each period (for example, average earnings received in 1973 by Canadian-born men aged 15 to 24 in 1973, plus those received in 1974 by Canadian-born men aged 16 to 25, and so on to include those received in 1984 by Canadian-born men aged 26 to 35. The same process was carried out for the later period.)

If an individual was not employed in a given year (because of attending school, being unemployed or unable to work, or simply not participating in the labour market), zero earnings were attributed in that year. There-

fore, the cumulative wages and salaries stated in this paper are lower than those earned by someone who worked full year, full time every year.

These estimates are *not* based on longitudinal data. Conceptually, they differ for two reasons: death and international migration. For instance, some men aged 16 to 25 in 1974 would no longer have been alive in 1984. Similarly, some would have moved out of Canada. Nevertheless, the estimates provide a reasonable approximation of the sum of earnings received by a given cohort over several years. More importantly, as long as mortality rates and international migration rates remained fairly constant over the two periods, estimates of changes in cumulative earnings should be reasonably accurate.

Families include unattached individuals as well as economic families of two persons or more.

As a result, while cumulative wages and salaries of Canadian-born men aged 36 to 55 were three times as high as those of their female counterparts during the 1973-1984 period, the ratio dropped to about 1.8 during the subsequent period.

All the above patterns held for cumulative *earnings*—that is, wages and salaries plus net self-employment income.

### Down even more for young immigrant men

During the 1973 to 1984 period, immigrant men aged 26 to 35 cumulated about \$319,000 in wages and salaries, roughly \$30,000 more than their Canadian-born counterparts. However, while cumulative wages and salaries of Canadian-born men aged 26 to 35 fell by fully \$40,000 between the two periods, they dropped by more than \$75,000 for immigrant men. As a result, during the 1988-1999 period, the cumulative wages and salaries of immigrant men no longer exceeded those of their Canadian-born counterparts. Immigrant men aged 36 to 45 also experienced a sharper decline.<sup>6</sup>

The poorer performance of immigrants was also observed among women. While Canadian-born women 26 to 35 enjoyed an increase in cumulative wages and salaries between the two periods, their immigrant counterparts experienced virtually no change. Similarly, cumulative wages and salaries of older Canadian-born women rose by at least \$15,000 more than those of their immigrant counterparts.

Once again, all aforementioned patterns held when cumulative earnings rather than cumulative wages and salaries were examined.<sup>7</sup>

Why have cumulative earnings of immigrants evolved less favourably? At least part of the answer lies in the average weeks worked and weekly earnings in the two 12-year periods.

Among men aged 26 to 35, weekly earnings fell roughly 15% for both the Canadian-born and immigrants (Table 3). However, weeks worked by immigrant men fell 7% while those of Canadian-born men remained virtually constant. Therefore, cumulative earnings of immigrant men fell more. Among men aged 36 to 45, the sharper decline in cumulative earnings of immigrants resulted from greater drops in both their weekly earnings and weeks worked. In contrast, Canadian-born women of all age groups enjoyed a greater increase in cumulative earnings than immigrant women, mainly because they increased their number of weeks worked at a much faster pace. Hence, for most age-sex combinations, cumulative earnings of immigrants evolved less favourably, mainly because of differences in time worked rather than differences in weekly earnings.

### Wealth implications

Unless declines in cumulative wages and salaries are completely offset by increases in other types of income (for example, Employment Insurance, social assistance benefits, or interests and dividends) or increases in savings rates, individuals are likely to feel an effect on their wealth holdings. For instance, the drop of about \$10,000 in average cumulative earnings from one 12-year period to the next was likely a major factor underlying the decline in median wealth of family

**Table 3: Average weeks worked and weekly earnings over 12 years**

	Weeks worked			Weekly earnings*		
	1973-84	1988-99	Change	1973-84	1988-99	Change
			%	1999 \$		%
<b>Men</b>						
26 to 35						
Canadian-born	38.6	38.5	-0.3	656	555	-15.4
Immigrants	40.4	37.6	-6.9	687	587	-14.6
36 to 45						
Canadian-born	46.8	45.1	-3.6	872	808	-7.3
Immigrants	47.9	45.2	-5.6	878	790	-10.0
46 to 55						
Canadian-born	46.3	45.1	-2.6	916	916	0.0
Immigrants	47.9	46.4	-3.1	924	948	2.6
<b>Women</b>						
26 to 35						
Canadian-born	28.8	35.2	22.2	444	414	-6.8
Immigrants	32.3	34.3	6.2	455	434	-4.6
36 to 45						
Canadian-born	26.9	37.4	39.0	479	524	9.4
Immigrants	30.1	37.4	24.3	484	523	8.1
46 to 55						
Canadian-born	25.6	37.5	46.5	437	557	27.5
Immigrants	29.6	38.4	29.7	442	559	26.5

Sources: Survey of Consumer Finances, 1973-1995; Survey of Labour and Income Dynamics, 1996-1999. For the 1973-1984 period, immigrants are those who arrived in 1972 or earlier; and for the 1988-1999 period, in 1987 or earlier.

\* Average weekly earnings of individuals who worked at least one week in a year.

units whose major income recipient was Canadian-born and aged 26 to 35.<sup>8</sup> Between 1984 and 1999, median wealth of such families fell by about \$8,000 (Table 4).<sup>9</sup> Likewise, the drop of more than \$30,000 in the average cumulative earnings of young immigrants probably explains a large fraction of the \$23,000 decline in median wealth observed among family units headed by young immigrants.

Changes in cumulative earnings over 12 years will likely be less correlated with changes in wealth holdings for older families than they are for younger ones for at least two reasons. First, wealth holdings of individuals aged 46 to 55, for example, depend among other factors on earnings received

over at least 30 years (since these individuals were 16 to 25). Second, for a given level of cumulative earnings, consumption patterns are

likely to change more over two distinct 30-year periods than over two 12-year periods, thereby weakening the relationship between cumulative earnings and wealth holdings.

Changes in family composition and in the correlation between spouses' earnings may also affect family wealth. The growth in the proportion of unattached individuals over the last 20 years implies that an increasing proportion of individuals do not benefit from the economies of scale associated with cohabitation. This tends to depress savings and, thus, wealth holdings of family units. Furthermore, the growing tendency of highly paid men to be married to highly paid women increases wealth holdings of many dual-earner couples and likely increases wealth inequality.

### The role of student debt

The greater debt load of students may also have contributed to a decrease in wealth holdings of young families. However, its effect is limited for two reasons. First, student debt is likely to be carried mainly by postsecondary graduates, who represent only a fraction of young individuals. Second, between 1982

**Table 4: Median wealth of families,\* by age of major income recipient**

	Canadian-born			Immigrants		
	1984	1999	Change	1984**	1999†	Change
	1999 \$		%	1999 \$		%
26 to 35	30,100	22,200	-26.2	50,900	28,300	-44.4
36 to 45	75,900	67,100	-11.6	102,400	94,700	-7.5
46 to 55	120,300	114,500	-4.8	148,200	199,500	34.6

Sources: Assets and Debts Survey, 1984; Survey of Financial Security, 1999

\* Families include unattached individuals

\*\* Arrived in 1972 or earlier.

† Arrived in 1987 or earlier.



and 1995, average amounts owed at graduation by bachelor's graduates increased only by about \$3,700 (in 1999 dollars) for men and \$4,000 for women (Finnie 2001). Furthermore, average amounts owed by other postsecondary graduates increased even less. In contrast, cumulative earnings of young Canadian-born men fell by at least \$40,000 between the periods 1973 to 1984 and 1988 to 1999. Clearly, the decline in cumulative earnings of young men contributed much more to the decline in wealth holdings of young families than did the growth in student debt.<sup>10</sup>

Other factors must also have played a role. Young individuals now get married later, thereby delaying benefits from the economies of scale associated with cohabitation. This may be offset by some individuals staying longer with parents or cohabiting in other ways.<sup>11</sup>

### Homeownership implications

If individuals are waiting until they have a certain level of savings before buying a first house, one would expect the decline in cumulative earnings of young workers to result in a postponement of homeownership. Indeed, this was the case for families with a young immigrant as the major income recipient. In 1984, 55% of these families owned a principal residence (Table 5). Fifteen years later, only 43% of their counterparts did so.<sup>12</sup> In contrast, family units headed by young Canadian-born individuals experienced virtually no decline in homeownership. About half owned a house both in 1984 and 1999.

The fall in homeownership among young immigrants but not among young Canadian-born individuals is consistent with the greater decline in cumulative earnings among young immigrants. The easier access to mortgage loans observed during the 1990s may be one reason why homeownership did not fall among Canadian-born individuals, despite a fall in their cumulative earnings.

### Summary

Relative to their counterparts in the mid-1970s, young men today stay in school longer, are less likely to be employed full time and, until recently, received lower earnings (in constant dollars) when working full year, full time. Taken together, these three factors explain why they had much lower cumulative earnings over the 12-year period from 1988 to 1999 than their counterparts did from 1973 to 1984.

**Table 5: Families\* owning a principal residence**

	Canadian-born		Immigrant	
	1984	1999	1984**	1999†
	%			
26 to 35	51.1	50.4	54.9	43.4
36 to 45	70.1	68.0	75.2	67.3
46 to 55	72.5	73.2	78.0	79.0

Sources: *Assets and Debts Survey, 1984*; *Survey of Financial Security, 1999*

\* Includes unattached individuals.

\*\* Arrived in 1972 or earlier.

† Arrived in 1987 or earlier.

Among Canadian-born individuals, this decline was partly offset by the growth of cumulative earnings of young women. Overall, young Canadian-born individuals cumulated roughly \$10,000 less between 1988 and 1999 than between 1973 and 1984. Young immigrants fared worse. Their cumulative earnings dropped by more than \$30,000. The decline in cumulative earnings was likely a major factor underlying the decline in median wealth of young families. While the growth in student debt also played a role, its contribution was much more limited.

Consequently, as measured by median wealth, the typical young family in the late 1990s had less assets than its counterpart in the mid-1980s.<sup>13</sup> Having less assets reduces the ability of a family to absorb financial shocks in the event of a permanent layoff, unforeseen expenses or health problems, or the decision of one of its members to quit a job. It may also influence the effort expended by an individual to find a new job or the decision to leave a job with unsatisfactory working conditions.

The decline in cumulative earnings may also have affected the decision of some young families to buy a home or have children. Indeed, homeownership fell among families headed by young immigrants, and the average age of mothers at the birth of their first child rose from 25.7 to 27.1 between 1986 and 1996 (Statistics Canada 1999). The extent to which the decline in wealth holdings may have contributed to postponing having children in some families cannot be examined with the data currently available and thus remains an open question.<sup>14</sup>



The increase in the labour force participation of women is well documented. This increased participation and the move towards better-paying occupations have resulted in massive increases in cumulative earnings during a 12-year period for women in their mid-30s and older.

It should be pointed out that these results are based on averages and so may not apply equally to all individuals. For instance, changes in the cumulative earnings of young men may have been different for university graduates than for those with only a high school diploma. Likewise, cumulative earnings of full-year, full-time workers may have evolved differently from those of the 'average' individual. Because many individuals increase their education level or make transitions into and out of full-year, full-time employment over a 12-year period, data based on synthetic cohorts cannot provide accurate estimates of changes in cumulative earnings by education level or by full-year, full-time status. To do so, longitudinal data are needed.

### Perspectives

#### ■ Notes

1 The unemployment rate of young men not attending school full time was 10.4% in 1976 and 11.8% in 2001.

2 To produce earnings trends for the 1975-2000 period, earnings data from the 1996 Survey of Labour and Income Dynamics (SLID) were first compared with those of the 1996 Survey of Consumer Finances (SCF). If earnings in the SCF were, say, 2% higher than those in SLID, the SLID data for the 1996-2000 period were adjusted upwards by 2% in order to produce comparable numbers. The adjustment was done separately for each age-sex combination.

3 The increase in school attendance of Canadian-born young individuals was similar to that of young immigrants. Census data indicate that the percentage of Canadian-born young men enrolled in school full time rose by 15 percentage points, from 39% to 54%, between 1981 and 1996. The percentage of immigrant young men enrolled in school full time increased by 16 points, from 45% to 61%. The corresponding rates for Canadian-born young women in 1981 and 1996 were 37% and 56%, and 39% and 59% for immigrant young women.

4 Cumulative wages and salaries of men aged 26 to 30 and those aged 31 to 35 fell by about \$50,000 in both cases.

5 The growth in cumulative wages and salaries of women aged 26 to 35 was due to a solid rise of \$40,000 for women aged 31 to 35. Cumulative wages and salaries for women aged 26 to 30 did not rise.

6 Although immigrant men aged 46 to 55 experienced a somewhat larger drop in cumulative wages and salaries than their Canadian-born counterparts, they experienced a much smaller decrease in cumulative earnings.

7 Since immigration status is unknown for some respondents in the Survey of Labour and Income Dynamics, it is worth investigating the extent to which the poorer performance of immigrants could be affected by missing information. Data from the Survey of Consumer Finances indicate that immigrants aged 24 to 43 in 1997 (therefore aged 26 to 45 in 1999) who came to Canada in 1987 or earlier represented between 7% and 11% of the selected population in 1997. Accordingly, the cumulative earnings of immigrants were calculated under two assumptions. First, all individuals who did not know their immigration status were considered immigrants who came to Canada in 1987 or earlier. Second, of all individuals who did not know their immigration status, only those in the *top decile* of the distribution of earnings were considered immigrants who came to Canada in 1987 or earlier. Results based on the first assumption strengthened the study's finding of the poorer performance of immigrants 26 to 45 or younger (in 1999) in respect to cumulative earnings. Under the second assumption, cumulative earnings of immigrant men aged 26 to 45 fell at least \$14,000 more than those of their Canadian-born counterparts, and the cumulative earnings of similar-aged immigrant women rose at least \$10,000 less than those of their Canadian-born counterparts. Thus, the finding of poorer performance by immigrants aged 26 to 45 does not appear to be a result of excluding observations of unknown immigration status.

8 Ideally, one would like to correlate changes in cumulative earnings with changes in wealth holdings of *individuals*. Since the 1984 Assets and Debts Survey and the 1999 Survey of Financial Security measure wealth only at the family level, this analysis is limited to changes in wealth holdings of family units.

9 Ideally, the present discounted value of earnings (at the beginning of each period) received over each 12-year period should be computed and the resulting changes in wealth holdings estimated—assuming no changes in consumption expenditures between the two periods. Using a discount rate of 3%, the present discounted value (in 1973) of earnings received by Canadian-born men aged 26 to 35 amounted to \$252,700 for the 1973-1984 period, compared with \$213,900 (in 1988) for the 1988-1999 period. The corresponding amounts were \$128,700 and \$147,600 for their female counterparts, and \$190,800 and \$180,800 overall. If one assumes that the extra earnings were saved and generated a real rate of return of 3%, then differences in the present value of discounted earnings would generate changes in average wealth holdings of -\$53,600 for the men, +\$26,200 for the women, and -\$13,800 overall.

10 While the increase in school attendance may lead to an increase in student debt and a decrease in the number of years young individuals will be able to work full time before they reach, say, age 30, more education may increase their earnings in the longer term.

11 Card and Lemieux (1997) showed that between 1971 and 1994, the proportion of youth living with their parents rose more in Canada than in the United States. They concluded that the greater increase observed in Canada was related to poor labour market conditions in this country.

12 The decrease is statistically significant at the 10% level (two-tailed test).

13 Part of the decrease may have resulted from some young dual-earner couples' deciding to hold less in precautionary assets because the risk of income loss is spread over two earners.

14 Admittedly, changes in values and lifestyles have played an important role.

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# Earnings over time

Charles Beach, Ross Finnie and David Gray

A RECENT STUDY EXAMINED the earnings of Canadians between 1982 and 1997 to assess changes in the variance of wages and salaries over time and to determine the extent to which these fluctuations were caused by permanent or transitory factors.<sup>1</sup>

Changes in *permanent* earnings were measured by calculating the differences in earnings across workers during two sub-periods, after adjusting for age effects. In contrast, variations in *transitory* earnings were measured by calculating the average variance of the deviations in earnings for individuals around their mean earnings over a sub-period. These longitudinal measurements of year-to-year earnings variations reflect the instability of individual wages and salaries from one year to the next (see *Data source*).

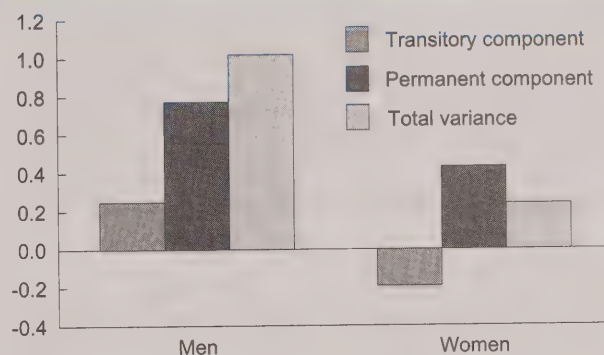
In other words, a person might have consistently above or below average earnings from one year to another, relative to others of the same age (the permanent component), while their earnings might also vary around their personal earnings profile over time (the transitory component).

## Main findings<sup>2</sup>

- The overall variation of age-adjusted earnings among men increased substantially (13%) between the 1982-89 and 1990-97 periods (Chart A); in comparison, the increase among women was quite modest (1.5%).
- The permanent component accounted for most of the inequality in both men's and women's earnings in the two eight-year periods (roughly two-thirds of the variation).

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**Chart A: Earnings inequality increased between the 1980s and 1990s, particularly among men.\***



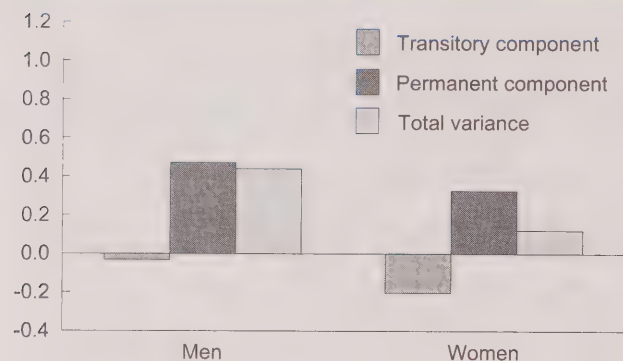
Source: Small Area and Administrative Data Division (Longitudinal Administrative Database)

\* Broad estimation sample comparisons between 1982-1989 and 1990-1997.

- The increased inequality in men's earnings between the 1980s and 1990s was due mainly to the permanent component. The transitory component played a lesser role, reflecting some rising volatility in individual earnings.
- In the case of women, the permanent component was solely responsible for the rising dispersion of their earnings over time. In fact, the transitory component worked in the opposite direction by restraining the expansionary effects of the permanent component.
- The variability of women's earnings exceeded men's throughout the study period; however, the differential fell by about half between the 1980s and 1990s.
- The increased variability in earnings between the two time frames was smaller in the more homogeneous narrow estimation sample, which contained continuously employed workers only (Chart B).



**Chart B: The transitory component is curbing the rising dispersion of earnings.\***



Source: Small Area and Administrative Data Division (Longitudinal Administrative Database)

\* Narrow estimation sample comparisons between 1982-1989 and 1990-1997.

The rising dispersion of wages and salaries because of variations in permanent earnings may reflect widening differentials in relatively stable personal characteristics associated with income such as educational attainment and skill levels. Such a trend could be mitigated or even reversed in the coming years with improvements in educational programs targeting youth, and the acquisition of lifelong learning habits generally, including the pursuit of skills upgrading or retraining by older workers.

In contrast, short-term earnings instability among men has declined in relative importance in recent years, while the size of the transitory component among women has been reduced altogether. Indeed, the small increase in the dispersion of women's earnings via the permanent component was limited in scope by the countervailing reduction in the dispersion of their transitory earnings, reflecting general improvements in the earnings stability of working women. These findings should temper concerns over rising earnings instability and place more emphasis in policy discussions on long-term differences in earnings across individuals.

## Data source

The study population consisted of employees aged 20 to 64 during the 1982-97 period in Statistics Canada's **Longitudinal Administrative Database**. This database was originally created from a 10% sample of Canada Customs and Revenue Agency T-1 taxation files. Workers with a limited attachment to the labour market in a given taxation year were excluded from the analysis (for example, full-time students and employees earning less than \$1,000).

The study population was further subdivided into two separate estimation samples for each sex and sub-period (1982-89 and 1990-97):

- a broad estimation sample, which comprised all records satisfying basic inclusion criteria, including workers who reported earning at least \$1,000 (in 1997 dollars) for at least two years in the relevant eight-year sub-period, and
- a narrow estimation sample, which included only those persons who reported earning at least \$1,000 each year of the applicable sub-period.

Although this study was based on administrative tax data rather than the Survey of Consumer Finances and the Survey of Labour and Income Dynamics, the findings are consistent over a similar time frame. In particular, declining long-term earnings among young men working full year full time, observed with the survey data, likely contributed to the widening dispersion of earnings noted by Beach, Finnie and Gray. Similarly, the rising earnings of young women may be reflected by the reduced variance of their earnings over time.

## Perspectives

### Notes

1 *Earnings over time* is adapted from a working paper by Charles Beach, Ross Finnie and David Gray entitled *Earnings variability and earnings instability of women and men in Canada: How do the 1990's compare to the 1980's*. The paper is published by the School of Policy Studies, Queen's University, Kingston, Ontario, 2001. A paper of the same title will also appear in a forthcoming issue of *Canadian Public Policy*.

2 Unless otherwise stated, these findings are based on the broad estimation sample only.

# Income and wealth

*Baudelaire Augustin and Dimitri Sanga*

**T**HE LARGE AMOUNT OF DATA on income distribution has proved useful in shedding light on inequalities, standard of living, and related problems such as poverty. However, in order to reach appropriate conclusions on such issues, it is important not to confuse income and wealth. Although some correlation exists between the two, it is far from perfect.

Inequality and poverty continually fuel debates in the political and academic spheres. Measures are commonly based on income and would present quite a different picture if based on wealth. For example, the statement that the elderly are among society's poorest members could be either true or false, depending on whether the measure is income or wealth. If wealth, the statement could be false. Retired persons often have less onerous liabilities, since mortgages and other obligations such as educational debts have already been paid off. While the flow of income is smaller for most elderly persons, their stock of wealth could be larger.

This article begins by looking at the basic concepts that distinguish income and wealth: flow and stock. Wealth and income distributions are then used to show the difference between these two concepts using a variety of tools (see *Techniques used*).

## **Wealth is a stock, income a flow**

In everyday language, little distinction is made between income and net worth (wealth). It is sometimes said that a person with high earnings is rich—for example, an athlete. Sometimes, being rich is evaluated on the basis of assets owned. The two ideas are quite different.

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A flow is a quantity per unit of time. A stock is a quantity at a given point in time. A useful image is an open faucet from which water runs into a bathtub. The water running from the faucet is a flow. A specific number of litres flow per minute or per hour. On the other hand, the quantity of water accumulating in the bathtub is a stock. To determine this quantity, the only time information required is when the stock was measured. No periodicity is necessary. The link between the flow from the faucet and the quantity of water in the tub is obvious: the greater the former, the more rapidly the latter will increase.

The concepts of flow and stock are used widely. For example, in demography, population growth is a flow, whereas the population at a given point in time is a stock. In accounting, the items on the income statement (income, expenditures, profits) are flows, while those on the balance sheet (assets, liabilities, equity) are stocks.

In the case of income and wealth, income is a flow, since it is meaningful only when defined in relation to a period of time (hourly, weekly, monthly or annual income). Net worth is a stock, increasing as new assets are acquired, debts repaid, or savings accumulated. Each of these elements depends more or less directly on income.

However, income and net worth are not synonymous. Just as a strong flow from the faucet could be running into an empty bathtub, a high income may be associated with low net worth. This is the case, for example, with young people starting their careers. Conversely, just as a weak flow from the faucet may be running into a nearly full bathtub, so could a low income accompany high net worth. This is the case with some retirees who have little income but who have accumulated and paid for substantial assets—for example, a house or RRSPs.



The link between wealth and income can be expressed as a simple mathematical equation:

$Wealth(t) = Wealth(t-1) \cdot (1+r) + \text{after-tax income}(t) + \text{net inter-family transfers}(t) - \text{expenditures}(t)$  with  $t$  as the present time and  $r$  the constant annual rate of return.

The wealth of a family at a given point in time is simply the sum of its net assets, which could include inheritances, and its savings invested at an annual rate of return  $r$ , plus inter-family transfers. Savings are equal to after-tax income minus expenditures. A family that spends all its after-tax income in a given period will not be adding to its wealth during that period (see *Data source and definitions*).

### Net worth and after-tax income: a clear but imperfect relationship

If income and wealth were synonymous, people better off in terms of income should also be better off in terms of wealth. In other words, the top 20% of persons in terms of income should also be the top 20% in terms of net worth. The corresponding case should apply for the bottom 20% and for all other quintiles.

For example, in a table of income quintiles by wealth quintiles, the cells on the main diagonal should all have 20% of the population and all the other cells should have 0%. If income and wealth were totally unrelated, the population would be distributed equally among all the cells. In that case, all the cells would have a value of 4%. Clearly, this is not the case (Table 1). Consider, for example, the lowest income quintile. Only slightly more than half of this quintile (11% out of 20%) are in the lowest wealth

**Table 1: Households by income and net worth quintiles**

		Net worth quintile				
		1	2	3	4	5
	Lower limits (\$)	0	7,400	50,000	126,100	270,400
Income quintile		%				
1	0	11	4	2	2	1
2	16,000	5	5	4	3	2
3	27,700	2	5	5	4	3
4	40,100	1	4	5	5	4
5	58,700	0	1	4	6	9

Source: Survey of Financial Security, 1999

quintile. Indeed, one-twentieth of them (1% out of 20%) are in the highest wealth quintile.

However, income and wealth have an imperfect but clearly discernible relationship. A person who is poor from a net worth standpoint has more than one chance in two of also being poor from an income standpoint. However, there is a 45% chance that the person will fall into a higher quintile for income than for net worth. On the other hand, a person in the top net worth quintile has a 45% chance of also being in the top income quintile. But then again, 55% of people who fall into the top net worth quintile do not fall into the top net income quintile.

### Household shares of income and wealth differ

Households in the top and bottom quintiles have a larger share of net worth than after-tax income (Table 2). Households in the third and fourth quintiles have a larger share of after-tax income than net worth, while the second quintile shows equal shares of income and net worth.

This relationship can also be observed in terms of centiles of after-tax income. (Centiles divide households into 100 equal portions ranging from lowest income to highest.)

If after-tax income and net worth shares were identical, the relationship between the two measures would take the form of a straight line (Chart A). In effect, each centile would claim the same percentage of after-tax income as of net worth. On the contrary, the shares of income and wealth are different in many respects, whichever centile is considered.

Households in the lowest after-tax income centiles generally have a larger share of wealth than of after-tax income. This may be because elderly persons, for whom C/QPP and OAS are often the only sources of income, fall into the low after-tax income centiles. On the other hand, they have substantial net worth in the sense that they have paid off most of their debts. These centiles also contain self-employed workers who may be sustaining losses, causing their after-tax income to be negative even though they have substantial net worth.



**Table 2: Household shares of wealth and after-tax income**

After-tax income quintile	Average after-tax income	Average net worth	Share of after-tax income	Share of wealth
	\$			%
1	8,300	135,700	5	6
2	22,000	128,700	11	11
3	33,500	173,400	17	16
4	48,400	260,800	24	22
5	104,200	889,300	43	45

Source: Survey of Financial Security, 1999

The higher centiles contain many families with a larger share of after-tax income than net worth. These families earn sizeable incomes but also have sizeable liabilities such as mortgages, student loans, and other debts.

Between the two extremes are centiles in which shares of after-tax income and net worth are equal. (The relationship between shares of income and net wealth for economic families and unattached individuals is the same as that observed for all families since all families, are composed of economic families plus unattached individuals.)

### Income and wealth tend to vary in the same direction but not at the same rate

Continuing the analogy of net worth and net income to water from a faucet running into an open bathtub: the water from the faucet is income, the water accumulating in the tub is wealth. What goes down the drain represents current expenditures—that is, the portion of income that has been consumed and not kept as wealth.

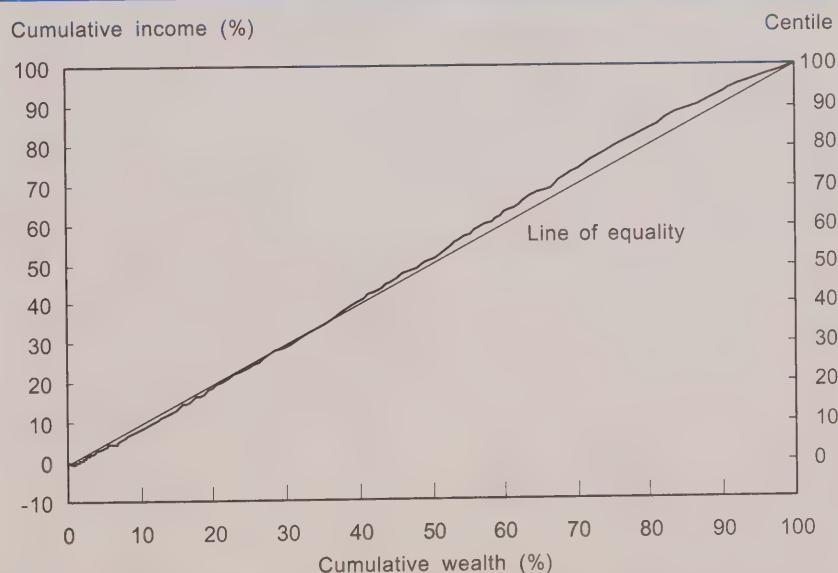
This relationship is always present, but varies considerably from one stage in the life cycle to the next. While the particular experiences of individuals differ considerably, everyone tends to follow a general pattern: we are born, grow as children, go to school, set up a household, and start a family. We

struggle to find our first job, pursue a career, and eventually retire. This is the life cycle. Each stage involves very different behaviours with respect to income creation, expenditures, and savings.

In the absence of longitudinal data, cross-sectional data by age must be used to approximate various stages in the life cycle. Rather than following the same individuals over their lifetime, different individuals are compared at different stages in the cycle. The data used reflect not only life-cycle effects (purely age) but also cohort effects (Table 3).

Persons in the under-25 age group appear to be the poorest in terms of both net worth (\$1,800) and after-tax income (\$12,600). This group is probably made up largely of students with unstable jobs or no income, or of young workers who are unskilled or just starting their career. Also, with respect to wealth, they would have had little time to accumulate savings.

The 25 to 34 age group is likely made up largely of young people beginning their career and starting families. Income and assets increase rapidly, but so do debts. This has the effect of slowing the increase in net worth. Persons from 35 to 49 are advancing in their careers. Their earnings increase slowly but rise steadily. Debt growth slows, causing net worth to increase very

**Chart A: A household's share of wealth is not the same as its share of after-tax income.**

Source: Survey of Financial Security, 1999

**Table 3: Median after-tax income, wealth, assets and debts**

	After-tax income	Net worth	Total assets	Total debts
		\$		
Less than 25	12,600	1,800	5,900	2,900
25 to 34	33,000	28,100	54,900	15,000
25 to 29	28,800	13,900	27,000	10,700
30 to 34	36,900	45,500	102,400	23,000
35 to 49	42,100	86,500	155,000	26,000
35 to 39	39,200	65,300	138,900	30,000
40 to 44	41,000	89,400	155,200	25,000
45 to 49	46,800	120,100	181,100	23,200
50 to 64	39,300	164,900	215,000	7,100
50 to 54	44,700	152,700	216,800	18,000
55 to 59	41,200	171,500	221,300	6,000
60 to 64	29,200	174,600	200,200	500
65 and over	24,400	154,600	161,800	0
65 to 69	27,800	176,600	193,700	0
70 to 74	26,200	174,500	177,000	0
75 to 79	23,800	146,700	148,000	0
80 and over	19,400	109,500	109,500	0

Source: Survey of Financial Security, 1999

rapidly. Whereas income rises from \$33,000 to \$42,100, an increase of 28%, net worth more than triples, climbing from \$28,100 to \$86,500, an increase of 208%.

Between 50 and 64 years of age, earnings hardly increase at all. Nevertheless, assets continue to grow as a result of saving, and total debt declines as homes and cars are paid off. Those aged 50 to 64 have the greatest net worth, even though their income differs little from that of the preceding age group. The 65-and-over age group is phasing into retirement. Income falls dramatically, from an average of \$39,300 to \$24,400, making them the poorest after those under 25 in terms of after-tax income. Assets also decline. But because debts are now almost non-existent, net worth does not decline as much. In fact, the 65-and-over age group is in second place in terms of net worth.

One way to see the relationship between income and wealth is to look at after-tax income, net worth, assets and debts by age and, for each variable, compare one group's median with the highest median for all groups. This value is then expressed as a percentage (Chart B).<sup>1</sup> This approach shows how each variable changes over time—when it peaks and when it declines—not the

## Data source and definitions

This study used the 1999 **Survey of Financial Security**, which gathered data on the assets and debts of families and unattached individuals.

**Family unit:** economic family or unattached individual.

**Economic family:** two or more persons who live in the same dwelling and are related to each other by blood, marriage, common law or adoption.

**Unattached individual:** person who lives alone or with unrelated persons.

**Total income:** income from all sources (including government transfers) before deduction of federal and provincial taxes. Total income is also known as income before taxes (but after transfers). It includes market income and government transfer payments.

**Market income:** total earnings (from paid employment or self-employment), investment income, retirement income (private pension plan) and other income. It corresponds to total income minus government transfers. It is also known as income before taxes and transfers.

**Government transfers:** all direct payments to individuals and families by the federal, provincial and municipal governments: Old Age Security, the Guaranteed Income

Supplement, Spouse's Allowance, Canada and Quebec Pension Plan benefits, Child Tax Benefits, Employment Insurance benefits, workers' compensation benefits, credits for the goods and services tax (GST) or the harmonized sales tax (HST), provincial or territorial tax credits, social assistance payments, and other payments.

**Income tax:** total federal and provincial taxes on income and capital gains in a given year.

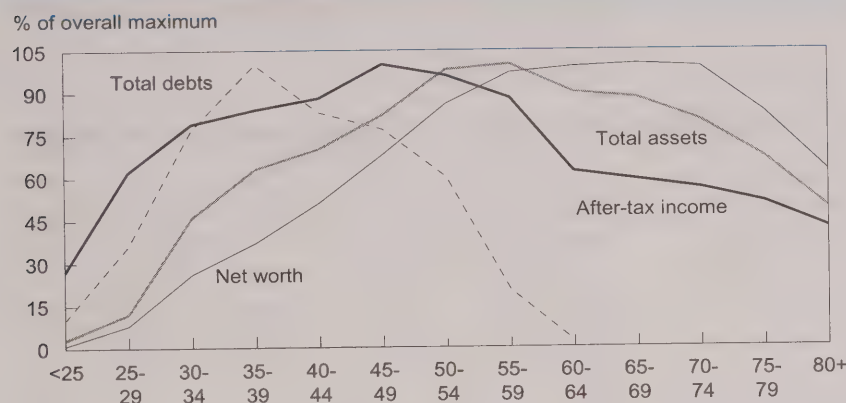
**After-tax income:** total income minus income taxes.

**Assets:** all family assets, including financial assets (RRSPs, other registered plans, deposits in financial institutions, mutual/investment funds, stocks, savings bonds and other bonds, and other financial assets) and non-financial assets (principal residence, other real estate, vehicles, other non-financial assets, and equity in a business).

**Debts:** all debts owed by the family. They include mortgages, lines of credit, credit cards, student loans, vehicle loans, and other debt.

For further information on the definitions of the different components, see the concepts and definitions guide produced by the Income Statistics Division.



**Chart B: Debts peak early and virtually disappear after age 65.**

Source: Survey of Financial Security, 1999

actual levels. (Because of sample size limitations, the two extremes were collapsed—under 25, and 80 or more.)

After-tax income and net worth evolve along similar lines in that they grow at the beginning of the cycle and then slowly decline. However, some differences are apparent. After-tax income peaks in the 45 to 49 age group. The average income of this group is 3.5 times that of the under-25 group. Net

worth does not peak until 20 years later at the beginning of retirement in the 65 to 69 age group. At this age, median net worth is more than 98 times that of the under-25 group.

At the beginning of the life cycle, young households take on debt in order to finance their education and start a family. Debt is therefore the variable that increases the most rapidly for the first age groups. On a dollar level, debt is not very signifi-

cant in comparison with net worth and total assets. But debt change over time shows the relationship between net worth, total debts, and after-tax income over the life cycle. Debt reaches its peak in the 35-39 age group, falling rapidly until it almost disappears after age 65.

Income is also increasing for these groups, causing debt growth to cease and total assets to grow. Around 45 to 49 years of age, income growth ceases. Nevertheless, net worth continues to increase, owing not only to saving but also to declining debt and possibly to inheritances. But the growth in net worth is fleeting. Starting at 55 to 59 years of age, it slows appreciably and drops in the last two age groups.

In short, wealth and income evolve along similar lines but at a different pace. At the start of the life cycle, income increases more rapidly than wealth. Toward the middle of the cycle, income stalls while wealth continues to grow. In retirement, income and wealth both tend to decrease.

## Summary

Income and wealth are commonly used to assess the well-being of individuals, families or entities. While the two measures are related, the relationship is not perfect: greater income is likely to mean greater wealth—but not always.

## Perspectives

### Note

1 The median value was used in the tables in preference to the average because the median is considered to be more representative of households in each group. The median is less sensitive to extreme cases, such as a small group of individuals with unusually high income or large assets.

## Techniques used

The difference between income and net worth may be illustrated using several concepts, among which is the way each is distributed for a given population. A preferred way to determine the distribution of income or wealth is to look at the share of each held by a given percentage of the population of interest. The focus is therefore on quintiles, deciles or centiles. These describe what share of wealth or income is held by 20%, 10%, or 1% percent of the population, ranging from the lowest to the highest.

Quintiles and centiles have been used in this study. Quintiles (Table 1) divide the population into fifths from least to most for after-tax income and net worth. Centiles are given for after-tax income, and so wealth is also calculated by after-tax income centile to maintain the same population by centile. Net worth could also have been used as the starting point and then calculating after-tax income for each wealth centile.

As is generally done for studies on wealth and income where extreme values are common, median values are used. The median is less sensitive to values on the extreme.



# Working smarter

*Ted Wannell and Jennifer Ali*

COMPUTERS have become an enormous presence in Canadian workplaces. In 1999, 70% of Canadian workplaces (accounting for 90% of employment) had at least one computer user. Moreover, 6 in 10 workers regularly used a computer on the job, double the 3 in 10 in 1990.

This major change has not escaped the attention of economists, business analysts and labour market researchers. The rapid diffusion of computers and computer-based technologies has spawned a number of lines of inquiry. Some wonder why expanding computer usage has not been accompanied (at least until recently) by similar increases in productivity—the so-called productivity paradox. Others are more concerned with the complementarities of human capital (education and work skills) and physical capital (buildings and machines). Endogenous growth theories hypothesize that economic growth is enhanced when the quality or quantity of both types increase in tandem. But what happens if growth in one outpaces change in the other? The situation whereby the implementation of computers and computer-based technologies exceeds the growth of computer skills in the labour force has received particular attention in recent years.

Classical economic analysis implies that if the demand for a particular type of labour (for example, computer-literate workers) increases faster than the supply, then the price (their earnings) will increase relative to other workers. This process has been termed skill-biased technological change. Although the literature developed initially as an explanation for the increasing gap between the earnings of more educated and less

educated workers in the United States, skill-biased technological change has subsequently been examined in the context of most advanced economies.

If one were to assess the evidence in favour of the skill-biased technological change hypothesis in the language of a courtroom drama, ample circumstantial evidence can be shown, but no smoking gun. The demand- and supply-side trends seem to have the appropriate timing (most strongly demonstrated in the United States). And studies combining plant-level measures of technology change and aggregate proxies for employee skills (for example, ratio of white-collar to blue-collar workers) add corroboration. However, data combining plant-level technology information with individual-level education, training, wage and technology-use information have not previously been available.

Although this study does not purport to have found the smoking gun, it does use a new source—the Workplace and Employee Survey (WES)—that contains information relevant to the examination of the skill-biased technological change hypothesis. Most importantly, WES combines information on workplaces with information on employees within those workplaces.

Of particular interest are data on major computer hardware and software implementations in workplaces that span a broad cross-section of the economy; training efforts of implementers versus other workplaces; and education, computer use and demographics of employees.

Although WES provides an interesting new perspective, it also has limitations. The general debate focuses on changes in technology and the demand for highly skilled workers. This study uses only the initial 1999 cross-section of the WES sample and thus cannot directly address questions that pertain to longer-run changes in technology and labour supply.<sup>1</sup> Thus the results neither indicate the direction of causation nor

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account for lagged effects that may appear (or accumulate) over time. Also, WES does not contain a measure of current capital stock (computer or otherwise), so current computer investment may not be an accurate indicator of the employer's technological proficiency. These data will improve as the WES panel is tracked over time.

This report addresses four questions. Do computer hardware and software implementers spend more per employee on training than non-implementers? Do implementers have more highly educated workforces? Are highly educated workers more likely to be found in implementing workplaces? Are recently hired workers in implementing workplaces better educated than longer-tenured co-workers?

Although the second and third questions are very similar, the second uses employer data while the third draws on employee data. In essence, this allows an examination of whether the employer and employee perspectives corroborate one another. The results consist mainly of regression results. These should not be interpreted as tests of formal models nor as indicators of the direction of causation, but rather as conditional means and distributions that account for many of the employer and employee variables related to computer technology, training and education.

## Literature review

The process of skill-biased technological change is a dynamic one. The adoption or evolution of new technology or of the stocks and marginal investment in computer hardware and software are hypothesized to precipitate increases both in training and in the demand for more educated workers (Berman, Bound and Machin 1997; Kahn and Lim 1995; Burris 1998). The demand for and wages of less skilled workers should decline concomitantly (Autor, Katz and Krueger 1997).

Capturing the component of change ideally requires longitudinal data on firms. Such an investigation would track changes in the level and sophistication of computer stock and investment in technology, changes in the level of training provided, and changes in the education level and composition of the employees. Both the time component and the firm level are important for establishing the causal order and causal association. Skill-biased technological change would be demonstrated if firms with a strong orientation towards technology (as evidenced by existing

computer stock or increased investment in technology) experienced an increase in training as well as in the educational level of their employees (or at least new hires). Previously, such analyses have not been possible.

Skill-biased technological change was originally proposed in the United States as an explanation for the wage increases of highly skilled workers relative to less skilled workers through the 1980s (Bound and Johnson 1992; Berman, Bound and Griliches 1994). The research, primarily focused on manufacturing industries, produced compelling evidence that increasing demand for college-educated workers accounted for a growing wage gap by education. The strongest factor in the increase of the relative wages of more highly skilled workers was technological change that favoured more educated labour over less educated labour (Bound and Johnson 1992).

International evidence supports the U.S. data and demonstrates that these trends are pervasive across industries in the U.S. and other OECD countries (Berman, Bound and Machin 1997; Machin and Van Reenen 1998). Average education and the proportion of workers who use computers is associated with an industry's research and development intensity (Machin and Van Reenen 1998). Moreover, the increased demand for educated workers and their wage premium appear to be strongest in industries with the most technological change (Allen 1996; Bartel and Sicherman 1997).

The same phenomenon has been observed in Canada. Industries with more technological change tend to have more highly educated and highly paid workers (Baldwin, Gray and Johnson 1997; Bartel and Sicherman 1997).<sup>2</sup> As firms introduce new technology, their skill requirements increase (Baldwin and Da Pont 1996; Baldwin 1999). However, research in Canada on skill-biased technological change remains tangential. Most evidence is gleaned from research focused on related topics such as skill polarization, firm innovation, or trends in workplace technology (Hughes and Lowe 2000; Myles 1988; Economic Council of Canada 1991; McMullen 1996). It is clear that technologically oriented firms are more committed to training (Baldwin 1999; Baldwin and Johnson 1995, 1997) and have higher wage rates (Baldwin and Da Pont 1996; Baldwin, Gray, and Johnson 1997). What has been needed is an integrative study that examines the relationship between the introduction of technology, training and education.



## Methodological issues

Given the limitations of available data, many previous studies had to use less than optimal indicators of skill or technology change. The main problem was the lack of integrated employer-employee data, so either skill or technology had to be examined at higher than appropriate levels of aggregation.

A number of studies have examined skill and technology measures at the industry level (Allen 1996; Autor, Katz and Krueger 1997; Baldwin and Johnson 1995; Baldwin, Gray and Johnson 1997; Baldwin 1999; Machin and Van Rensselaer 1998). Such studies inferred the general processes at play, but necessarily disregarded the distribution (as opposed to average) of employee skills and the range of technological commitment across establishments (Baldwin 1999).

Other studies have taken the analysis down to the individual level—on either the employer or employee side—but were forced to aggregate on the other side. So, studies using household data to look at employee wages as a skill proxy correlated those measures to technology indicators at the industry level (Bartel and Sicherman 1997; Autor, Katz and Krueger 1997). Similarly, studies that looked at technology indicators at the plant level most frequently had only crude estimates of the skill level within those plants, such as the ratio of production to non-production workers (Berman, Bound and Machin 1997; Haskel and Heden 1999) or the estimated proportion with either a high school (Bartel and Lichtenberg 1987) or university education (Autor, Katz and Krueger 1997; Bartel and Lichtenberg 1987; Doms, Dunne and Troske 1997; Bartel and Sicherman 1997).

As this brief review indicates, a number of different measurements have been used as indicators of skill and technology. Education is most frequently cited as the best indicator available from most survey sources since it signals to employers the ability to learn and adapt to technological change (Baldwin, Gray and Johnson 1997; Levy and Murnane 1996; Bartel and Lichtenberg 1987). This study used a range of educational variables, measured at the individual level, to find the shape of the relationship (if any).

Less agreement exists on the most appropriate indicator of technological change at the workplace level—the proportion of employees using computers (Autor, Katz and Krueger 1997, Haskel and Heden 1999), ratio of research and development cost to net sales (Bartel and Sicherman 1997), patents received (Bartel

and Sicherman 1997), the ratio of real output to real capital stock (Bartel and Lichtenberg 1987), or the number of production-related technologies used in the past year (Doms, Dunne and Troske 1997). Since most of the literature on technological change is framed in the context of the computerization of the workplace, this study used WES information on new computer technology investments in the previous 12 months. The questionnaire captured the cost of the three most expensive such implementations, which were summed and divided by the number of employees for a per capita measure. This may understate the level of computer spending in the most technology-intensive workplaces, yet it still results in a wide dispersion of per-employee, computer-spending patterns.

Finally, most of the studies cited limited their focus to manufacturing industries (the exceptions being Autor, Katz and Krueger 1997; Allen 1996; Bound and Johnson 1992). Given that computer use is pervasive across all industries, it makes sense to be as inclusive as possible.<sup>3</sup>

## Technology implementers offer more training

The skill-biased technological change hypothesis postulates that computer literacy is a scarce commodity. Thus, implementations of new computer-based technologies should increase the demand for employee training—the most immediate method of acquiring scarce skills. Note that this does not necessarily distinguish computers from other types of technologies, since the skill required to operate a new printing press, for example, may also be scarce. However, unlike many skill-intensive technologies, computers are ubiquitous and so play a correspondingly greater role in the overall demand for skills. Furthermore, computer hardware and particularly software generally have shorter life spans than other forms of capital, thereby stimulating the need for continual training. According to WES, about 23% of workplaces introduced at least one major new hardware or software technology in the previous year.

Significantly higher levels of training coincided with these adoptions of computer technologies. About half (50.6%) of workplaces that adopted computer technology provided related training in 1999, almost three times the rate of 17.7% among those that did not. But much of this gap is due to the greater propensity of large establishments to both invest in hardware and software and provide computer-related training.



It is also important to look at computer-related training from the employee perspective, thereby removing much of the large establishment bias. This bias exists since larger employers are very likely to have some form of employee training, even though not many employees may be involved in any period. About 23% of employees in workplaces with new hardware or software received some computer-related training, compared with 14% in those that had not implemented any technology (Table 1). So employees of hardware or software adopters were over one-and-a-half times more likely than employees of other establishments to receive computer-related training. Furthermore, the incidence of training increased with the per employee cost of the hardware or software implemented. Almost one-third (32%) of employees in businesses that spent \$2,500 or more per employee for a new technology implementation received training, compared with 19% of employees in workplaces spending less than \$700.

Another potential source of bias in training comparisons relates to differences in computer use. Two-thirds of employees in implementing establishments used computers, compared with just over half (56%) in non-implementing establishments. Therefore, it may be that the elevated training rates of computer technology adopters could simply be due to the greater concentration of computer users in these workplaces. But the same result persists when looking only at computer users: those working for technology adopters were 39% more likely to receive related training than those in other establishments.

**Table 1: Employee training by cost per employee of computer-based technology adoption**

	Computer-based technology adoption				
	None	Overall	\$1-\$699	\$700-\$2,499	\$2,500 +
	%				
<b>Computer related</b>					
<b>All employees</b>	<b>14.1</b>	<b>23.0</b>	<b>19.3</b>	<b>26.3</b>	<b>31.6</b>
Classroom	8.5	13.7	11.6	14.3	19.3
On-the-job	6.9	11.7	9.5	14.5	15.2
<b>Computer users</b>	<b>23.6</b>	<b>32.7</b>	<b>29.3</b>	<b>37.9</b>	<b>36.0</b>
Classroom	14.2	19.6	18.1	20.8	22.1
On-the-job	11.7	16.4	14.1	21.0	17.2
<b>Other training</b>	<b>44.3</b>	<b>45.6</b>	<b>47.8</b>	<b>41.1</b>	<b>44.4</b>
Classroom	29.6	30.7	32.5	26.6	29.8
On-the-job	23.0	23.5	24.5	21.1	23.1

Source: Workplace and Employee Survey, 1999

This elevated training rate could also be related to some other characteristics of computer technology adopters. As a test, the probability that an employer offers computer-related training was fitted on a number of location characteristics using a logistic regression model. The adoption of computer technology effect remained significant even after controlling for location size, industry, computer usage, collective bargaining coverage, number of competitors, and regional unemployment rate. So computer technology adoptions were generally associated with higher levels of computer-related training.

If computer implementation leads to a higher level of training, then why the concern with education? Workers could be getting all the computing know-how they require through training. Although computer training may be available for any class of worker, the training will generally be more efficient for those who have 'learned how to learn.' This holds true particularly

if frequent training episodes are required to keep up with evolving technologies or when employees can be relied upon to train themselves. For example, WES indicates that 57% of university graduates taught themselves to use their main computer application, compared with about 40% of those with lower levels of education.

Also possible is a feedback loop by which a highly educated workforce might influence further computer investments. To wit, highly educated workers might be more adept at finding technological solutions to workplace problems and so may influence their employers to spend more on computer hardware and software.

### **Workplaces with highly educated employees more likely to be technology implementers**

Workplaces spending more money per employee on the implementation of new hardware or software computer technologies tend to have a better-educated workforce,

**Table 2: Technology implementation intensity, by employee education**

	Expenditure per employee			
	\$0	\$1-\$699	\$700-\$2,499	\$2,500+
	%			
Less than high school	3.03	2.69	1.59	1.05
Some high school	11.27	10.65	8.71	6.76
High school diploma	21.31	20.53	21.15	19.93
Postsecondary, non-university	37.91	37.57	36.78	39.04
Some university	9.63	9.20	10.54	11.41
Bachelor's degree or more	16.86	19.37	21.23	21.82

Source: Workplace and Employee Survey, 1999

and the proportion of employees with less than a high school diploma declines as spending increases (Table 2). In contrast, the workplace share of university graduates increases with the level of computing investment—from 17% in workplaces with no major computer investments to 22% in workplaces that spent \$2,500 or more per employee.

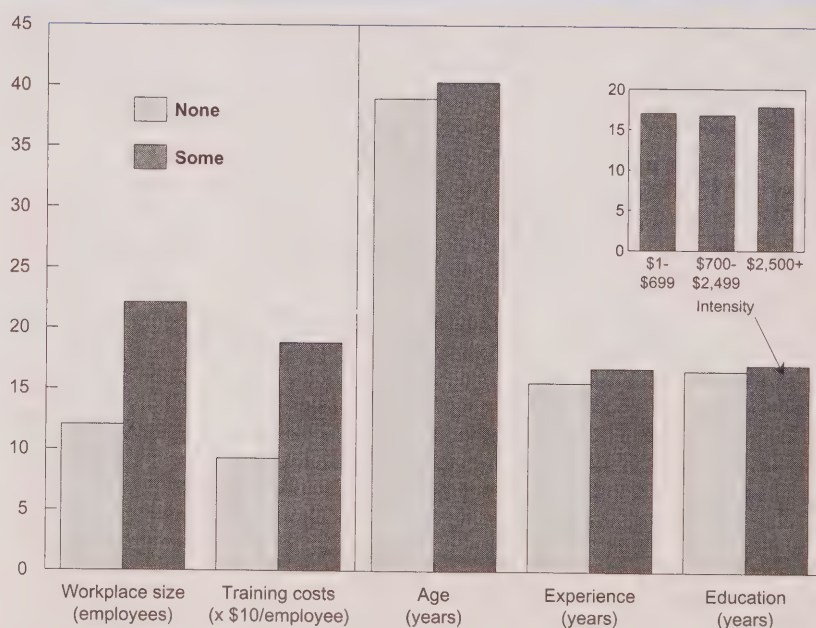
When education is further disaggregated into a 28-level semi-continuous variable, the association between education and technology is confirmed. Employees in workplaces that did not implement a technology had a significantly lower average level of education, 16.6 years, than those in workplaces that did implement, 17.1 (Chart). The significant difference in employee education is most evident between workplaces that spent less than \$2,500 per employee compared with those that spent \$2,500 or more.

Although the average education level in implementing workplaces is higher than in other workplaces, the absolute difference is not great. In fact, the differences may be related to other differences

between the businesses. For example, workplaces that introduced a new technology in the past 12 months were larger and spent more on overall training per employee. Furthermore, their employees were older and had

more experience. Variations also existed by region and industry. It is possible that if these variables were accounted for, the educational differences between implementers and non-implementers might disappear. However, such cross-tabulations would be unwieldy and rife with small cell sizes. Instead, multivariate regression techniques can be used to account for the effects of intervening variables (location size, industry, and region).

To examine whether the introduction of new technology was associated with employee education and training, controlling for other relevant variables, ordered logit models were estimated (Table 3). These models estimate the odds that a workplace is a more intensive computer technology implementer, given a number of

**Chart: Technology implementers were larger; spent more on training; and had an older, more experienced, and more educated workforce.**

Source: Workplace and Employee Survey, 1999



**Table 3: Technology investment related to employee education: Log odds and odds ratios (parentheses) from ordered logit models**

Model	Training cost per employee			
	Education	\$1-\$199	\$200-\$599	\$600+
<b>Education<sup>†</sup></b>				
1 Education	0.05 *** (1.05)			
2 Training		0.38 * (1.47)	1.00 *** (2.72)	0.79 *** (2.20)
3 Education, training	0.04 ** (1.04)	0.40 * (1.49)	0.98 *** (2.66)	0.74 *** (2.10)
4 Education, training, size	0.04 ** (1.04)	0.38 * (1.46)	0.96 *** (2.62)	0.73 *** (2.07)
5 Model 4 + industry, region	0.03 * (1.03)	0.35 * (1.42)	0.87 *** (2.38)	0.48 * (1.62)
6 Model 5 + experience, sex, age	0.03 * (1.03)	0.35 * (1.42)	0.87 *** (2.38)	0.48 * (1.62)
<b>University education<sup>††</sup></b>				
1 University education	0.40 *** (1.49)			
2 Training		0.38 * (1.47)	1.00 *** (2.72)	0.79 *** (2.20)
3 Education, training	0.36 ** (1.43)	0.40 * (1.49)	0.99 *** (2.68)	0.75 *** (2.12)
4 Education, training, size	0.35 ** (1.42)	0.38 * (1.46)	0.97 *** (2.62)	0.74 *** (2.09)
5 Model 4 + industry, region	0.29 * (1.33)	0.35 * (1.42)	0.87 *** (2.39)	0.47 * (1.61)
6 Model 5 + experience, sex, age	0.29 * (1.34)	0.35 * (1.42)	0.87 *** (2.39)	0.47 * (1.61)

Source: *Workplace and Employee Survey, 1999*

<sup>†</sup> The reference category is no training expenditures.

<sup>††</sup> The reference category for education is postsecondary education or less.

\*  $p < .05$  \*\*  $p < .01$  \*\*\*  $p < .001$ .

characteristics. Training expenditures per employee were also included as control variables, since training may be a substitute for employee education (even though most evidence indicates it is complementary). The results are most easily interpreted in terms of odds ratios. For example, an odds ratio of 1.05 for education in Model 1 indicates that each increase in the average level of workforce education was associated with a 5%

increase in the odds that the workplace was at a higher level of computer technology investment. Similarly odds ratios for categorical variables such as 'low training' are interpreted relative to a reference category—in this case, workplaces that did no formal training. So, workplaces that spent between \$1 and \$199 per employee on training in 1999 were 47% more likely to be at a higher level of computer spending than workplaces that spent nothing on employee training.

These regressions reiterate the finding that workplaces whose employees are better educated are more likely to introduce a new technology and to spend more per employee on implementation. The relationship between education and technology implementation remained significant when training, workplace size, industry, region, and individual level controls were added (Models 3 to 6). The existence of separate education and training effects indicates that training is not a perfect substitute for employee education level.

Although the coefficient for education appears small relative to training effects, the education variable in these models was entered as a 28-level semi-continuous variable, so each increment in education is quite small and the estimation procedure assumes a constant incremental effect across all levels of education. For example, nine increments separate a grade 12 education from a bachelor's degree, so the difference in the probability of implementing (about 45%) between a hypothetical workplace employing only high school graduates and one employing only university graduates is quite large. In fact, there may be 'threshold effects' between education and technology: some increments in education may have a stronger association with technology than others.

A university education is frequently cited as just such a threshold in the association between technology and education. To test for this effect, the logit models were re-run using a dichotomous education variable: at least some university versus none.<sup>4</sup> The results do indicate the presence of a strong threshold effect for university education—employers with university-



educated employees were more likely to invest (or invest more) in hardware/software than employers without university-educated employees. Although the effect is diminished somewhat with the addition of controls for training, workplace size, industry, and region, it nonetheless remains strong and statistically significant. For example, in the most complete models, workplaces with university-educated employees were much more likely to invest than other workplaces.<sup>5</sup>

### Highly educated workers more likely in implementing workplaces

In this section, the focus is on the individual—specifically, on whether individuals holding jobs in workplaces that invest heavily in computer-based technologies have higher levels of education than employees in other workplaces. This is an alternative view on the relationship examined in the previous section and can be viewed as corroborating evidence.

Using the semi-continuous education variable, ordinary least square (OLS) models were fitted on hardware/software implementation costs per employee, training, and other controls (Table 4). The regression equivalent of a simple cross-tabulation, Model 1 indicates that working for an employer who spent \$2,500 or more per employee on new hardware/software and, to a lesser extent, an employer who spent from

\$1 to \$699 per employee was associated with significantly higher levels of education.

Although the addition of individual controls for sex, age and experience (Model 2) had almost no effect on these results, the association began to weaken (becoming insignificant for the \$1 to \$699 per capita group) when workplace-level controls for number of employees, industry, and region were included (Model 3). However, the significant association between education and intensive computer technology implementation (\$2,500 or more per employee) persisted in all models, including additional controls for workplace and employee-specific training.

The training variables themselves produced some interesting results (Models 4 to 6). Workplace per-employee spending on training was not significantly related to employee education even though coefficients were in the expected direction.<sup>6</sup> On the other hand, employee-specific training (that is, undertaken by the respondents) was positively and significantly related to the employee's level of education. This result was noted for both computer-specific training and other forms of training. So, better-educated employees were more or less randomly distributed across workplaces with varying levels of employee training, but were more likely to receive training than less-educated employees within all types of establishments.

**Table 4: Employee education related to technology investment (OLS models)**

	Technology implementation			Employer training			Employee training in last 12 months	R <sup>2</sup> (unadjusted)	Adjusted Wald (implementation)
	< \$700	\$700 - \$2,499	\$2,500 +	Low	Medium	High			
Model 1 = Technology implementation	0.43*	0.19	1.22 ***					0.0060	p<.001
Model 2 = 1 + age, sex, experience	0.44*	0.22	1.26 ***					0.0157	p<.001
Model 3 = 2 + industry, region, size	0.12	-0.06	0.89 ***					0.1624	p<.001
Model 4 = 3 + employer training costs	0.09	-0.11	0.86 ***	0.40	0.21	0.39		0.1633	p<.001
Model 5 = 4 + employee computer training	0.06	-0.16	0.80 **	0.00	0.15	0.32		0.1696	p<.001
Model 6 = 4 + one year employee training	0.07	-0.13	0.82 ***	-0.09	0.02	0.19	0.97***	0.1765	p<.001

Source: Workplace and Employee Survey, 1999

\* p<.05 \*\* p<.01 \*\*\* p<.001.

Since OLS regression rests on some strong assumptions about the variable of interest, which were clearly not present in the semi-continuous education variable,<sup>7</sup> the results were tested for robustness using two different measures of education—an ordinal measure and the dichotomous measure for university education.

In the first alternative, education was classified into six categories: less than grade 9, grades 9 to 13 (no diploma), high school diploma, non-university postsecondary, some university, and university degree. This categorical variable was fitted to the same independent variables as the OLS models using ordered logit models (Table 5). As with the OLS regressions, only very intensive levels of computer technology investment (\$2,500 or more per employee) were consistently associated with significantly higher levels of employee education. The magnitude of the association was diminished by the addition of workplace controls for industry, region, and size, but remained significant.

Assuming again that a university education (signalling that a person has 'learned how to learn') may be the only really important educational step for technology implementing employers, a logistic regression with a

simple indicator of university education was fitted on the same sets of variables as the OLS and ordered logit models. The same pattern was evident. A university education was significantly associated with the highest level of hardware/software investment. The magnitude decreased with the addition of workplace-level controls, yet remained significant.

These analyses indicate that highly educated employees are more likely found in workplaces that spent \$2,500 or more per employee to implement a hardware/software innovation in the past year. Highly educated employees were not concentrated in intensive-training workplaces, but rather were more likely to receive training in all types of workplaces. Overall then, this section supports previous literature that better-educated employees receive more training and work in more technologically oriented workplaces. Moreover, workplaces with highly educated workers are more likely than other workplaces to implement new computer technologies. However, a couple of caveats are necessary. Education and technology implementation, according to WES, are associated mainly at a high threshold of technology spending, which only a relatively small proportion of

**Table 5: Employee education related to employer technology investment—log odds and (odds ratios) from ordered logit models**

	Overall education				University education			
	Technology implementation			Adjusted Wald (imple- mentation)	Technology implementation			Adjusted Wald (imple- mentation)
	< \$700	\$700 - \$2,499	\$2,500 +		< \$700	\$700 - \$2,499	\$2,500 +	
Model 1 = Technology implementation	0.17 (1.18)	0.04 (1.04)	0.48 *** (1.62)	p<.001	0.20 (1.22)	0.03 (1.03)	0.50 *** (1.65)	p<.001
Model 2 = 1 + age, sex, experience	0.20 (1.22)	0.06 (1.06)	0.50 *** (1.65)	p<.001	0.20 (1.22)	0.04 (1.04)	0.51 *** (1.66)	p<.001
Model 3 = 2 + industry, region, size	0.06 (1.06)	-0.07 (0.93)	0.39 ** (1.48)	p<.001	0.09 (1.09)	-0.07 (0.93)	0.40 ** (1.49)	p<.05
Model 4 = 3 + employer training costs	0.04 (1.04)	-0.09 (0.91)	0.37 ** (1.45)	p<.001	0.08 (1.08)	-0.09 (0.91)	0.39 ** (1.48)	p<.05
Model 5 = 4 + employee computer training	0.03 (1.03)	-0.11 (0.90)	0.35 ** (1.42)	p<.001	0.07 (1.07)	-0.10 (0.90)	0.37 ** (1.45)	p<.05
Model 6 = 4 + one year employee training	0.04 (1.04)	-0.10 (0.90)	0.36 ** (1.43)	p<.001	0.07 (1.07)	-0.09 (0.91)	0.38 ** (1.46)	p<.05

Source: Workplace and Employee Survey, 1999

\* p<.05 \*\* p<.01 \*\*\* p<.001.



workplaces attain. Also, cross-sectional models do not indicate the direction of causation—a synergistic or reinforcing relationship likely exists between the technological capacity of a workplace and the education level of its workforce.

### Recent hires better educated than current employees

Previous sections essentially compared a stock (employee education) and a flow (incremental investment in computer technology). However, it seems likely that recently hired employees may better reflect the labour demand effects of recent technology implementation. As such, this section focuses on employees hired in approximately the same 12-month period in which the computer technologies in question were implemented. Although the focus on new employees would seem to stand on firmer theoretical ground, several factors potentially cloud the findings. First, the sample size of newly hired employees is much smaller than the overall employee sample, thus reducing the precision of estimates for this sub-population. Furthermore, low-wage, low-skill jobs tend to turn over at a much higher rate than high-skill jobs, which could mask the education-technology relationship if labour demand is segmented within businesses. Third, the analyses do not take into account intra-year timing issues—specifically whether hiring preceded or followed the reported implementation(s).<sup>8</sup>

Two components need to be addressed in determining whether new hires in computer-implementing workplaces are better educated than the existing stock of employees. First, does this relationship in fact exist? Second, is the effect either absent or substantially weaker in non-implementing workplaces? The answer to both is yes, albeit with some imprecision in the measurement.

Both an indicator of new hires and interactions between this variable and the computer-spending indicators were added to the models. In this formulation, the coefficient of the new hire indicator (Table 6) represents the relative education of new hires in non-implementing establishments. The results from all three models are clear: new hires in non-implementing workplaces have no more education than their longer-tenured colleagues. On the other hand, the implementation–new-hire interaction term indicates that new hires are better educated than their co-workers within implementing workplaces. The coefficients for the

**Table 6: Education of new hires in implementing workplaces**

	Type of regression		
	OLS (standard error)	Logistic (odds ratio)	Ordered logistic (odds ratio)
<b>Compared with current employees</b>			
Non-implementers	-0.34 (0.22)	-0.10 (0.90)	-0.17 (0.84)
Implementers	0.39 (1.53)	0.36* (1.43)	0.29* (1.34)
<\$700	0.59* (0.32)	0.52** (1.68)	0.34* (1.40)
\$700 - \$2,499	-0.50 (0.43)	-0.31 (0.73)	-0.09 (0.91)
\$2,500 +	1.16 (0.72)	0.73 (2.07)	0.81* (2.24)
<b>Compared with new hires in non-implementers</b>			
Implementers	0.78* (2.21)	0.46* (1.58)	0.47** (1.60)
<\$700	0.93* (0.38)	0.63** (1.88)	0.52** (1.68)
\$700 - \$2,499	-0.16 (0.47)	-0.21 (0.81)	0.08 (1.08)
\$2,500 +	1.50* (0.75)	0.84 (2.31)	0.98* (2.66)

Source: *Workplace and Employee Survey, 1999*  
 \*  $p < .05$  \*\*  $p < .01$ .

logistic and ordered logistic models indicate appreciable and significant effects. A randomly selected new employee in an implementing workplace is at least one-third more likely to be at a higher level of education than longer-tenured co-workers. The coefficient for the OLS model is similar in magnitude, but is not significant at the customary level of 0.05. Therefore, all else being equal, newly hired employees in implementing workplaces are more likely than their co-workers to have a university degree (logistic model) or more generally to be found among the higher rungs of the six-level education scale (ordered logistic model).

The separate interactions between the new hire variable and the indicators of increasing computer investment per employee indicated a significant effect for workplaces that invested less than \$700 per employee, no significant effect at the middle level of technology



investment, and a relatively large effect among the most intensive technology implementers that was significant only in the ordered logistic model. New employees of the most intensive implementers were twice as likely to have a university education as employees of non-implementers. The 'J' pattern outlined by these coefficients (appreciable effect, no effect, large effect) may have resulted from measurement imprecision related to the one-year horizon on computer technology investments and the relatively small number of both workplaces and new employees at the higher levels of investment.

The interaction terms between the new-hire indicator and the hardware-software implementation variables are direct tests of the hypothesis that new hires of computer technology implementers are better educated than new hires in other workplaces. The results of the regression models generally confirm this hypothesis, although some of the estimates again suffer from a lack of precision. Comparing all computer technology implementers with non-implementers, the OLS, ordered logistic and logistic models all indicate significant educational differences among new hires that extend across the schooling spectrum. The odds ratios indicate that a randomly selected new hire in an implementing workplace is more than half again as likely to be at a higher level of education than a randomly selected new hire in a non-implementer.

If the education level of new hires is related to hardware/software implementation, one would expect their relative education (compared with new hires of non-implementers) to increase with the intensity of computer technology investments. Here the results are mixed. In each of the models, the largest interaction coefficient corresponds to the highest per employee implementation investment, although the coefficient in the logistic model is not significant. Smaller but more precise coefficients are noted for implementers that spent less than \$700 per employee on computer technologies. Again, the results for the middle level of computer investment (\$700-\$2,499 per employee) are puzzling. The education of their new hires does not differ significantly from new hires of non-implementers and is significantly less than the education level of new hires of more intense and less intense technology implementers.

In summary, new employees of computer technology implementers were generally better educated than both their longer-tenured peers within implementing

workplaces and new hires of non-implementing workplaces. Although the education differentials did not rise in step with increasing intensity of computer technology investment, this may be an artefact of measurement imprecision. On balance, micro-level evidence is reasonably robust that investments in computer technology are associated with a simultaneous increase in the demand for more highly educated workers.

## Conclusion

The skill-biased technological change hypothesis postulates that the increasing prevalence of computer technology is increasing the demand for highly skilled (educated) labour relative to less skilled (educated) labour. The hypothesis has most frequently been examined with industry-level data or, less frequently, with plant-level data from the manufacturing sector. However, when plant-level data are encountered in the literature, employee skill is typically proxied by the ratio of white-collar to blue-collar workers. Similarly, if household survey data are used to get better indicators of employee education or skills, then industry-level technology indicators are the norm. This study combined workplace-level technology information with information on the education and training of employees within those workplaces.

Major implementations of computer hardware and software were associated with elevated rates of computer-related training. At first blush, this finding seems patently obvious. Employees need to learn how to use new hardware and software systems. However, it also indicates that new systems require skills that are scarce, at least for some period, within individual workplaces. This is one of the foundations of the skill-biased technological change hypothesis. Furthermore, since computer hardware and software systems have relatively short life cycles, the need for new training should recur frequently. Thus technology-intensive employers may well favour employees who possess the educational credentials that demonstrate they have learned how to learn.

From the workplace perspective, employers with university-educated employees were more likely to invest in computer technology implementations. Although a weak linear relationship was found between per employee computer investment and a semi-continuous education variable, the evidence was strongest for a step effect associated with the presence of

university-educated employees. This finding adds support to the notion that technology-intensive employers would place a premium on hiring employees who have the educational signals that they will be effective learners—a notion very suggestive of skill-biased technological change.

From the employee perspective, university-educated workers were more likely to be found in the most technology-intensive workplaces. The employee models did not find a linear relationship between education level and the employer's computer technology spending. Instead, an educational step effect was associated with employers that spent \$2,500 or more per employee on computer hardware and software. These models also added an interesting twist to the training story. Highly educated workers were not unduly concentrated in high-training workplaces, but they were more likely to receive training than their less-educated co-workers, regardless of the overall training level of the workplace.

New employees of computer technology implementers were better educated than their longer-tenured co-workers. This is an important addition to the evidence base on skill-biased technological change since it relates marginal change in computer technology to marginal change in the intra-establishment distribution of education. Although it could be argued that this is simply a consequence of the increasing average level of education of the workforce, findings indicate otherwise. First, new hires in non-implementing workplaces were no better educated than their co-workers. Second, new hires in implementing workplaces were significantly better educated than new employees of non-implementing establishments. Thus the concentrated hiring of highly educated workers within implementing establishments clearly seems a demand-generated phenomenon.

Although WES will eventually provide longitudinal data, these results pertain only to the first cross section. Thus they cannot yet provide information on the long-term trends outlined by the skill-biased technological change hypothesis. Moreover, the information on computer technology investments was probably quite noisy in comparison with the accumulated technological capacity in the sampled workplaces. This undoubtedly affected the precision of some of the results. The longitudinal data, as they become available, should provide the basis to both refine and expand these findings, particularly with respect to the direction of causation.

Perhaps the most interesting line of inquiry will be to examine wages within the framework of the skill-biased technological change hypothesis. Remember that the hypothesis emerged as a broad-stroke explanation for increasing returns to education in the United States. Yet the relative returns to higher education in Canada and most European countries have remained much more stable. The hypothesis would also seem to imply that a wage premium should exist for on-the-job computer use. However, most recent studies have found little or no computer wage premium after controlling for unobserved heterogeneity. It seems likely that WES information, such as the type of computer applications used and the revealed ability to train oneself to perform new computing tasks, not to mention workplace technology investments, could provide interesting new insights into these issues.

### Perspectives

#### ■ Notes

- 1 The 1999 WES cross-sectional employer sample will be followed over time, creating the opportunity for more rigorous studies as the panel progresses.
- 2 Hughes and Lowe (2000) provide a notable exception, concluding that computer use is not associated with skill level and earnings, after controlling for occupational prestige, age, and employment status.
- 3 The WES sample excludes farming, fishing, trapping and public administration.
- 4 When education was classified into six ordinal categories, the university indicator was the only level of education that consistently had a significant coefficient.
- 5 Also tested was a model that allowed education to have a different effect for workplaces with varying levels of training—mainly to see if the combination of university-educated employees and high levels of training resulted in an extra technology boost (that is, a multiplicative rather than an additive effect). These interaction terms were separately and jointly insignificant.
- 6 The lack of precision in the relationship between employee education and workplace training expenditures may be a function of the data quality of the latter. Training expenditure information could not be provided by approximately one-quarter of the surveyed workplaces.
- 7 Most notably, the education variable was not normally distributed with equal increments between levels of the variable.



8 Although the survey contains the information to define new hires in relation to the timing of the hardware and/or software implementations, several factors limit the accuracy of such a measure: differing reference periods (employees were typically interviewed three to four months after their employers), recall error (which increases after six months), and item non-response by either the employer or employee. Furthermore, employers may well change hiring priorities in anticipation of a major technological implementation.

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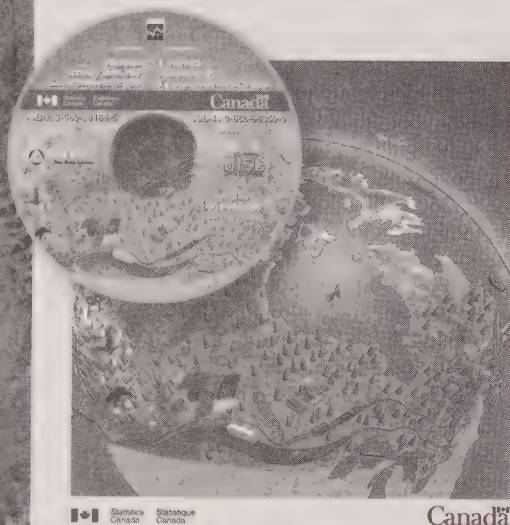
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# What's new?

## *Recent reports and studies*

### ■ JUST RELEASED

#### ■ *Labour statistics consistent with the System of National Accounts*

The Productivity Measures Program has published estimates of labour and hours worked in the entire Canadian economy, by industry and by province and territory, for 1997 to 2001.

The estimates reflect the integration of different labour market statistics sources that produce a database consistent with the concepts of the System of National Accounts (SNA) as well as with the input-output industrial coding, set up according to the new North American Industry Classification System. These data are split between the business and non-business sectors, and the economy as a whole.

For more information contact Jean-Pierre Maynard, Micro-economic Analysis Division, at (613) 951-3654 or [maynard@statcan.ca](mailto:maynard@statcan.ca).

#### ■ *Human activity and the environment*

This annual updates the more extensive compendium *Human activity and the environment*, which is published every five years.

According to the feature article "Air quality in Canada," the focus of capital investment of businesses directed at pollution prevention, abatement and control shifted from substances released to surface waters to those emitted to air from 1994 to 1998.

In 1998, almost 55% of such investments were directed toward preventing or abating emissions to air, compared with just over 30% in 1994. In contrast, capital expenditures of businesses directed at reducing substances released to surface waters fell from a peak of 55% in 1995 to 21% in 1998.

In 1998, Canadian businesses earned \$527.3 million from air pollution control goods and services. Pollution control systems and equipment generated the vast majority of this total—about \$460.0 million.

According to other data updated for this annual report, the waste management industry disposed of about 23.1 million metric tonnes of non-hazardous solid waste in 2000, up 11% from 1998. Per capita, each person disposed of an average of 0.75 tonnes of solid waste in 2000, compared with 0.69 tonnes in 1998.

In the 1990s, the Canadian government increased expenditures on forest protection by more than one-third, to \$561.9 million. However, government spending on silviculture declined to \$218.8 million by 1999, less than half of what it had been in 1990.

From 1981 to 1999, thermal-electric power stations more than doubled their use of sub-bituminous coal, lignite and natural gas.

Per capita consumption of energy increased 5.5% in Canada during the 1990s. However, the amount of energy required to produce one dollar of economic output actually declined.

Each Canadian in 1990 consumed just over 333 gigajoules of energy. By 2000, per capita consumption had increased to more than 351 gigajoules. (A 30-litre gasoline fill-up contains about one gigajoule of energy.)

Energy consumption for every dollar of inflation-adjusted gross domestic product (a measure of the energy intensity of the economy) declined during the decade.

*Human activity and the environment: Annual statistics 2002* (16-201-XIE, \$10; 16-201-XPE, \$40, includes CD-ROM) is now available. For more information, contact Murray Cameron, Environment Accounts and Statistics Division at (613) 951-3740; fax: (613) 951-0634; or [murray.cameron@statcan.ca](mailto:murray.cameron@statcan.ca).



### ■ *The effects of recessions on the services industries*

This paper analyses the effects of the 1981-82 and 1990-92 recessions on individual service industries. Quarterly changes in real GDP are analysed for each major industry, as are effects on employment. The results show that some service industries are more susceptible than others to recession.

The two recessionary periods differed in terms of impact and duration. Although the service sector was more robust than the goods sector, 5 of the 11 groups of service industries reported GDP losses during both periods. In addition, some of them brought output losses to the economy that largely exceeded their relative weight in the economy. On the other hand, several continued to expand their output even during the recession. The high-growth and public service industries were relatively resilient to the past two recessions. Distribution and consumption industries were largely dependent on economic conditions.

The research paper "The effects of recessions on the services industries" (63F0002XIB no. 41, free) is available on the Statistics Canada Web site ([www.statcan.ca](http://www.statcan.ca)). From *Our products and services*, choose *Internet publications* (free), then *Service industries*. For more information, contact Jean Lebreux at (613) 951-4907 or [jean.lebreux@statcan.ca](mailto:jean.lebreux@statcan.ca).

### ■ *Studies by Statistics Canada*

*Studies by Statistics Canada*, a new module on Statistics Canada's Web site has been launched, opening the door to the entire array of the Agency's analytical output.

Statistics Canada's studies are renowned for their objectivity and insight and are depended on by researchers and policy-makers in Canada and around the world.

Our analytical periodicals, including *Canadian Social Trends*, *Focus on Culture*, *Perspectives on Labour and Income* and the *Canadian Economic Observer* have long been popular sources of information and insight on Canadian society and the economy.

Now, in *Studies by Statistics Canada*, you can draw on the full scope of Statistics Canada's rich tradition of analytical work by searching all of its analytical studies, research papers, series and periodicals in one convenient location. You can also simply browse.

### ■ *Computer access*

Canadian students rank among the highest in the world in terms of access to computers both at home and at school. According to the Programme for International Student Assessment (PISA), a typical 15 year-old Canadian student in 2000 attended a school with one computer for every six students.

This is well above the average of one computer for every 13 students within member nations of the Organisation for Economic Co-operation and Development (OECD) as shown in the international report *Education at a Glance*.

In addition, an article using PISA data in the current issue of *Education Quarterly Review* showed that Canada was close to achieving universal access to high technology at home. Nearly 9 in 10 young Canadians had a computer at home, and 7 in 10 had access to the Internet at home.

In all countries, boys were more likely than girls to have a computer available at home for use almost every day, a few times each week, or between once a week and once a month.

Canadian principals surveyed as part of PISA 2000 reported that 80% of school computers were connected to the Internet. Across OECD countries, about one-half of school computers were linked to the Internet.

Not only were school and home computers highly accessible in Canada, then were also well-connected. However, home computers in Canada were less likely to be connected to the Internet than school computers. Only 69% of Canadian 15-year-olds said they had a link to the Internet at home. Home Internet access in Canada, however, still exceeded the OECD average of 45%.

The article "Information and communication technology: Access and use" is available in the October 2002 issue of *Education Quarterly Review*, Vol. 8, no. 4 (81-003-XIE, \$16/\$51; 81-003-XPB, \$21/\$68).

For more information, or to order tables including the ratio of students per computer, the availability and use of computers at home and at school by country and by province, contact Client Services, Culture, Tourism and the Centre for Education Statistics, at 1 800 307-3382; (613) 951-7608; fax: (613) 951-9040.



## ■ *Neighbourhood income and mortality*

The gap in life expectancy at birth between the poorest and richest neighbourhoods in Canada's urban areas narrowed substantially from 1971 to 1996, according to a new study that examines the effect of income on mortality.

In 1971, the disparity in life expectancy between the 20% of people in urban neighbourhoods with the lowest incomes and the 20% with the highest incomes was more than six years for men, and nearly three years for women.

During the next 25 years, life expectancy improved substantially for all income levels. However, the gains were larger for those in the lowest income neighbourhoods than for those in the highest.

Consequently, by 1996, the gap in life expectancy between the lowest and highest income neighbourhoods declined to five years for men, and considerably less than two years for women.

This study also found similar improvements in levels of infant mortality and a considerable improvement in the probability of survival to age 75.

This study found that socio-economic differentials in mortality are still of major importance in Canada, despite considerable progress in many areas.

The article "Trends in mortality by neighbourhood income in urban Canada from 1971 to 1996" is available in a supplement to *Health Reports* (82-003-SIE, free) on Statistics Canada's Web site ([www.statcan.ca](http://www.statcan.ca)). From *Our products and services*, choose *Internet publications* (free), then *Health*.

For more information, contact Russell Wilkins, at (613) 951-5305, or Jean-Marie Berthelot at (613) 951-3760; Health Analysis and Measurement Group.

## ■ *Financing of small- and medium-sized enterprises*

An entrepreneur's personal savings are twice as important as commercial bank loans in financing the start-up of new businesses, according to data on the capital structure of businesses from the 2000 Survey on Financing of Small- and Medium-sized Firms. However, once a business is in operation, commercial bank loans become the single most important source of finance.

Just over one-half (54%) of entrepreneurs reported that, in 2000, personal savings were very important in launching their business, whereas 27% cited commercial loans from banks, credit unions, *caisses populaires* or other financial institutions. About 23% of entrepreneurs said they also depended on their personal credit cards. (The survey did not ask whether businesses carried a balance and paid interest on their credit cards.)

Other major sources of finance were personal lines of credit and personal loans, trade credit from suppliers, loans from friends and relatives, leasing, and loans from government lending agencies. Knowledge-based industries had the lowest debt-to-equity ratio among a group of surveyed industries, as well as the lowest proportion of bank loans on their balance sheets.

For more information, contact Klaus Kostenbauer, Small Business and Special Surveys Division, at (613) 951-0691 or [klaus.kostenbauer@statcan.ca](mailto:klaus.kostenbauer@statcan.ca).

## ■ *The digital divide*

Canada's digital divide—the gap in the rate of Internet use between lower-income and upper-income families—appears to be shrinking slowly, according to a new study.

However, most of the improvement is occurring in middle- and upper-middle income groups. The gap in Internet use persists between people with the lowest incomes and those with the highest.

More than 5.8 million households, or 49% of all 12 million households, had at least one member that regularly used the Internet from home in 2001, a 23% increase from 2000. This was somewhat less than the gain of 42% from 1999 to 2000.

In 2001, 7.2 million households had at least one member who used the Internet regularly, either from home, work, school, a public library, or other location. This group represented 60% of all households, up from 51% in 2000.

The Internet age is passing by a substantial number of people who do not have the money or opportunity to participate. In 2000, 77% of households with the highest 10% of incomes used the Internet, 5 times the rate of 15% among those with the lowest 10% of incomes.

The proportion of new users in households with lower incomes has been increasing. However, from 1996 to 2000, the middle-income groups picked up share and accounted for proportionately more Internet users.

In 1997, 25% of all new Internet users came from households with the top 10% of incomes. By 2000, this percentage had dropped to 11%. Households in the bottom two income brackets accounted for about 7% of new Internet users in 2000, up from only 4% four years earlier.

Overall, the digital divide is closing. However, this has been caused entirely by households in the upper-middle of the income scale. Households in the three bottom income groups are continuing to lose ground compared with households in the top income group.

The research paper "The Digital Divide in Canada" (56F0009XIE, free), which assesses the extent of the digital divide and how it is evolving, is available on Statistics Canada's Web site ([www.statcan.ca](http://www.statcan.ca)). An expanded version, "Unveiling the Digital Divide" (56F004MIE, no. 7, free) is also available.

For more information, or to enquire about the concepts, methods or data quality of this release, contact George Sciadas, Science, Innovation and Electronic Information Division, at (613) 951-6389 or [george.sciadas@statcan.ca](mailto:george.sciadas@statcan.ca).

### ■ *Market research handbook*

The *Market research handbook* has been, since 1975, an authoritative source of socio-economic information reflecting key characteristics of local and national markets. By providing accurate and timely statistics on the changing demographics, standards of living, and economic characteristics of Canadian society, this product helps businesses locate target markets, track their market share, and assess their competitive position.

Including the latest data from the 2001 Census and a wide range of other surveys, the 2002 edition incorporates a number of features designed to make it more user-friendly. Features include a user's guide, annotated charts to reveal salient trends, help lines for each of the data sources, and references to CANSIM.

The *Market research handbook 2002* (63-224-XIB, \$94; 63-224-XPB, \$125) is now available. For general information about this publication, see the product description on Statistics Canada's Web site

([www.statcan.ca](http://www.statcan.ca)). From the home page, choose *Our products and services*, then click on the banner ad for the *Market research handbook*. For more information, contact the Small Business and Special Surveys Division at 1 877 679-2746.

### ■ *Family income*

After-tax income rose for the fifth straight year in 2000. Female lone-parent families recorded the largest percentage increase in after-tax income, mainly because of their improved market income. Their average after-tax income was an estimated \$29,081, up 8.4% from 1999. However, it remained lower than the average after-tax income of male lone-parent families (\$39,983).

At the same time, the number of families with low income fell to its lowest level in a decade, and the low-income rate declined to its lowest level since 1989.

After-tax income for families of two or more people increased for the fifth year in a row to \$54,725, up 12% from 1995.

This was the seventh consecutive year of growth in market income, driven mainly by labour market conditions. Average market income for families of two or more people was estimated at \$61,634 in 2000. It increased 18.6% in seven years from the low of \$51,947 in 1993—equivalent to an average annual growth of 2.5%.

The average market income of two-parent families increased for the fourth year in a row. In 2000, their average market income was \$73,175, up 20% from 1993.

All main family types experienced an increase in their market income from 1999 to 2000, but the market income of female lone-parent families grew the most (+15%).

On average, families of two or more people paid \$13,592 in income taxes, up \$835 or 6.5% from 1999. Income taxes of unattached individuals averaged \$5,169 in 2000, up 12.9% from 1993.

In 2000, the 20% of families with the highest income paid on average \$34,708 in income taxes, which made up 51% of all income taxes paid by families. In contrast, the 20% of families with the lowest income paid on average \$2,220, or 3.3% of the total income tax for all families.



Government transfers have declined for the fifth year in a row, not only in terms of the average amount received, but also as a share of total income. In 2000, families of two or more people received 9.8% of their total income from government transfers, compared with 12.8% in 1993. They received on average \$6,683 in government transfers, down 12.7% from 1993, mainly because of a considerable drop in Employment Insurance and social assistance payments.

However, the share of government transfers going to the 20% of families with the lowest after-tax income increased for four consecutive years, from 28% in 1996 to 31% in 2000.

The ratio of average market income received by the 20% of families with the highest income compared with the 20% of families with the lowest income was 11.7 to 1 in 2000, that is, \$11.70 held by the highest quintile for every \$1 held by the lowest quintile.

However, after taxes and transfers, the ratio fell to 5.3 to 1, showing the moderating impact that taxes and transfers have on the differences between the outer ends of the income distribution.

The after-tax income ratio of top to bottom remained fairly stable from 1987 to 1995 at about 4.8. It then rose in 1996 and 1997, and stayed at about 5.3 from 1997 to 2000.

An estimated 666,000 families of two or more people had low income in 2000, down from 714,000 in 1999. The low-income rate also declined, from 10.7% in 1996 to 7.9% in 2000, the lowest since 1989 when it was 7.5%.

This was the fourth consecutive year in which the low-income rate was lower than in the previous year, reflecting the improving economic conditions in the latter part of the decade.

Of the estimated 531,000 lone-parent families headed by women, 34% had low income in 2000, down from 38% in 1999. Four out of every five female lone-parent families had earnings in 2000. Of those without earnings, 88% had low income.

Although the low-income rate dropped, the overall financial situation of families below the low-income cut-off remained about the same. Families with low income would have needed, on average, an additional \$6,707 in after-tax dollars to rise above the low-income cutoff.

Low-income cutoffs are lower for smaller families, higher for larger ones, reflecting greater expenditures on necessities. They also vary by community size. For example, in 2000, a family of four in a city of 500,000 or more would be counted as living in low income if its after-tax income was below \$29,163. For the same family living in a rural area, the cutoff was \$19,120.

In 2000, an estimated 868,000 children under age 18 were living in low income, the lowest number since 1989 (765,000). The proportion of children living in low-income families has been declining since 1996, when it last peaked at 16.7% on an after-tax income basis.

This decline follows the overall improvements in the Canadian economy over the same period. In 2000, 12.5% of children lived in low-income families. This rate is among the lowest estimates recorded over the past twenty years.

Just over half of the children in low-income families lived in two-parent families. However, at 8.5%, the low-income rate of children living in these families was much lower than that of children living in female lone-parent families (38%).

The CD-ROM *Income Trends in Canada, 1980-2000* (13F0022XCB, \$195) and the publication *Income in Canada, 2000* (75-202-XIE, \$34) are now available.

For more information, contact Client Services, Income Statistics Division, at 1 888 297-7355; (613) 951-7355; or [income@statcan.ca](mailto:income@statcan.ca).

## ■ Household Internet use

The public-use microdata file for the 2001 Household Internet Use Survey provides information on the use of the Internet by Canadian households in the 10 provinces.

This is the fifth cross-sectional microdata file to be released in the series, which began with the Household Internet Use Survey for 1997. In previous years, household electronic commerce data were collected only if the Internet shopping was conducted from home. In 2001, electronic commerce included shopping from all locations for personal or household consumption. This survey improvement constitutes a break in the data series, preventing a direct comparison of electronic commerce results of 2001 with previous years.

What's new?

In addition, a revised version of the 1998 microdata file with minor changes to survey weights is now available.

The *Household Internet Use Survey* public-use microdata file on CD-ROM (56M0002XCB, \$2,000) is now available.

For more information, contact Claire Simard, Science, Innovation, and Electronic Information Division, at (613) 951-2183; fax: (613) 951-9920; or [claire.simard@statcan.ca](mailto:claire.simard@statcan.ca).

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# Key labour and income facts

## *Selected charts and analysis*

This section presents charts and analysis featuring one or more of the following sources. For general inquiries, contact Joanne Bourdeau at (613) 951-4722; [bourjoa@statcan.ca](mailto:bourjoa@statcan.ca).

### **Administrative data**

*Small area and administrative data*

Frequency: Annual

Contact: Customer Services  
(613) 951-9720

### **Business surveys**

*Annual Survey of Manufactures*

Frequency: Annual

Contact: Dissemination agent  
(613) 951-9497

*Annual Surveys—Service Industries*

Frequency: Annual

Contact: Lucie Lussier  
(613) 951-0410

*Business Conditions Survey of*

*Manufacturing Industries*

Frequency: Quarterly

Contact: Claude Robillard  
(613) 951-3507

### **Census**

*Census labour force characteristics*

Frequency: Quinquennial

Contact: Michel Côté  
(613) 951-6896

*Census income statistics*

Frequency: Quinquennial

Contact: John Gartley  
(613) 951-6906

### **Employment and income surveys**

*Labour Force Survey*

Frequency: Monthly

Contact: Marc Lévesque  
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*Survey of Employment, Payrolls and Hours*

Frequency: Monthly

Contact: Sylvie Picard  
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*Help-wanted Index*

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(613) 951-4090

*Employment Insurance*

*Statistics Program*

Frequency: Monthly

Contact: Sylvie Picard  
(613) 951-4090

*Major wage settlements*

Bureau of Labour Information

(Human Resources

Development Canada)

Frequency: Quarterly

Contact: (819) 997-3117  
1 800 567-6866

*Labour income*

Frequency: Quarterly

Contact: Anna MacDonald  
(613) 951-3784

*Survey of Labour and Income Dynamics*

Frequency: Annual

Contact: Client Services  
(613) 951-7355 or  
1 888 297-7355

*Survey of Financial Security*

Frequency: Occasional

Contact: Client Services  
(613) 951-7355 or  
1 888 297-7355

*Survey of Household Spending*

Frequency: Annual

Contact: Client Services  
(613) 951-7355 or  
1 888 297-7355

### **General social survey**

*Education, work and retirement*

Frequency: Occasional

Contact: Client Services  
(613) 951-5979

*Social and community support*

Frequency: Occasional

Contact: Client Services  
(613) 951-5979

*Time use*

Frequency: Occasional

Contact: Client Services  
(613) 951-5979

### **Pension surveys**

*Pension Plans in Canada Survey*

Frequency: Annual

Contact: Patricia Schembari  
(613) 951-9502

*Quarterly Survey of Trusteed*

*Pension Funds*

Frequency: Quarterly

Contact: Bob Anderson  
(613) 951-4034

### **Special surveys**

*Survey of Work Arrangements*

Frequency: Occasional

Contact: Ernest B. Akyeampong  
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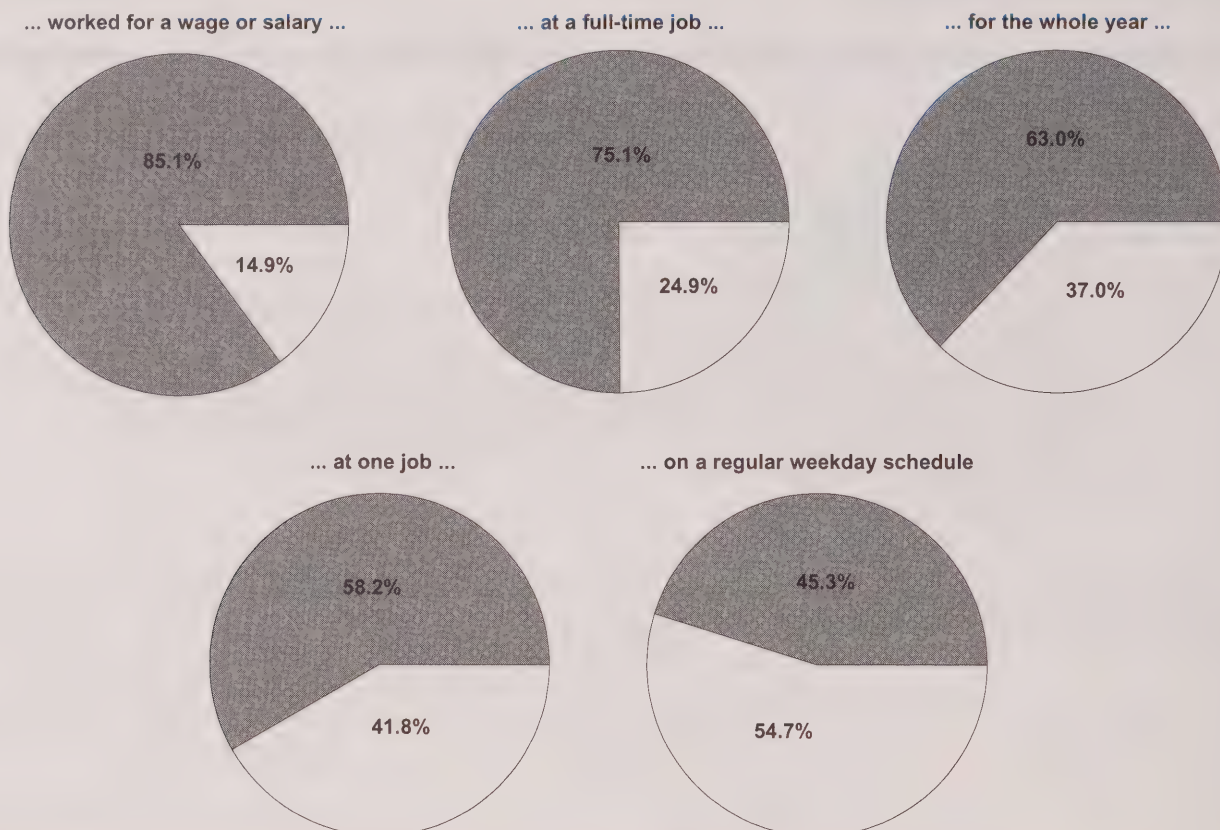
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Of the 11.7 million 25-to-54 year-olds who worked in 2000, less than half had a 'standard' job for the whole year.

### People who ...



Source: Survey of Labour and Income Dynamics

### Employment in 2000

The labour market is not static—people find and leave jobs, start careers, phase into retirement, launch businesses, do other things. For all its rich detail, the monthly Labour Force Survey can shed little light on these ebbs and flows. With the longitudinal Survey of Labour and Income Dynamics, the picture becomes clearer.

Younger (15 to 24) and older (55 and over) persons typically have less attachment to the labour market, but how many core-age (25 to 54) workers actually have a stereotypical full-time, full-year paid job with a regular schedule? In 2000, the answer: less than half. And

despite the well-documented convergence in the labour market participation of men and women, some marked differences remain.

	Men	Women
	'000	
<b>Total employed</b>	<b>6,207</b>	<b>5,509</b>
	%	
Paid	83	88
Full-time	80	70
Full-year	68	58
Single jobholder*	63	53
Regular schedule	46	44

\* Includes people who may have changed jobs during the year, but not those who worked at more than one job concurrently for 15 days or more.



# Cumulative index

1989–2002

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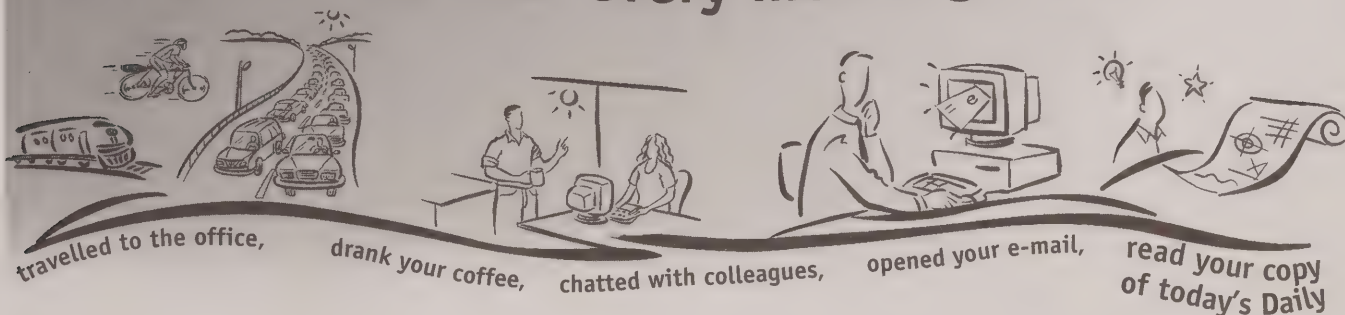
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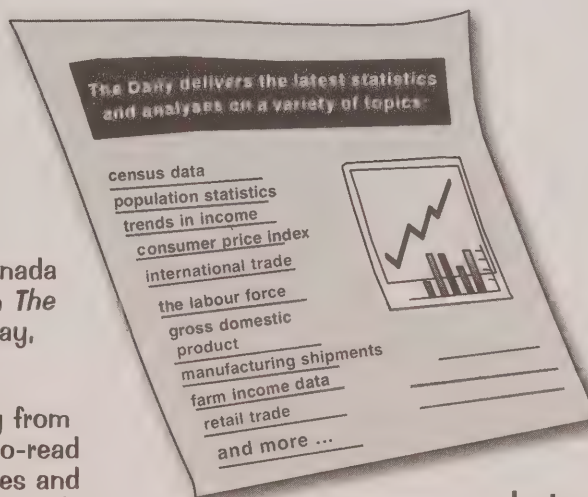


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